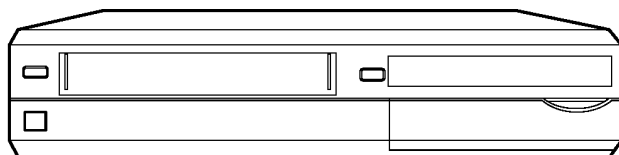


Service Manual

Blu-ray Disc Player

Model No. **DMP-BD70VP**
DMP-BD70VPC



Note 1: These model's BDP/Digital P.C.B.
Module are - RFKNBD70VP
- RFKNBD70VPC

Note 2: This model's VHS Mechanism is R4
Mechanism Chassis for North America
Model.
:Order No. VR0404003C1

Caution:

Pairing of BD Drive and Digital P.C.B. as "BDP/
Digital P.C.B. Module" have to be replaced together.
If the either BD drive or Digital P.C.B. is changed,
BD Drive unit has to be re-aligned. Because the
alignment data for BD Drive Unit is stored in Digital P.C.B..

Vol. 1

Colour

(K).....Black Type

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WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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1 Safety Precautions

1.1. General guidelines

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.1.1. Leakage current cold check

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between $1M\Omega$ and $5.2M\Omega$.
When the exposed metal does not have a return path to the chassis, the reading must be ∞ .

1.1.2. Leakage current hot check (See Figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a $1.5k\Omega$, 10 watts resistor, in parallel with a $0.15\mu F$ capacitors, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the volt-

age at each point.

5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliampere. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

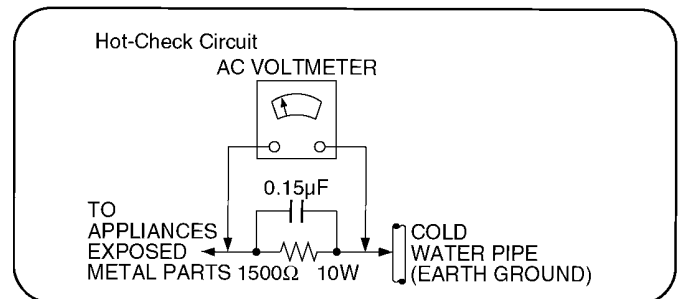


Figure 1

1.2. Caution for fuse replacement

(For English)

CAUTION:

Replace with the same type fuse:
(Manufacturer: Hollyland, Type:50T, 3.15A, 250V)

(For Canadian French)

ATTENTION:

Utiliser un fusible de rechange de même type:
(Fabricant: Hollyland, Type:50T, 3.15A, 250V)

2 Warning

2.1. Prevention of Electrostatic Discharge (ESD) to Electrostatic Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatic Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistor-and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Caution

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are marked by  in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

2.2. Precaution of Laser Diode

CAUTION:

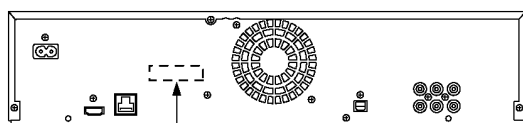
This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pickup lens.

Wave length: 790 nm (CDs)/ 650 nm (DVDs)/ 405 nm (BDs)

Maximum output radiation power from pickup: 100 μ W/VDE

Laser radiation from the pickup lens is safety level, but be sure the followings:

1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.



Product complies with DHHS Rules 21 CFR
Subchapter J in effect at date of manufacture.
Panasonic Corporation Kadoma, Osaka, Japan

ACHTUNG:

Dieses Produkt enthält eine Laserdiode.

Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

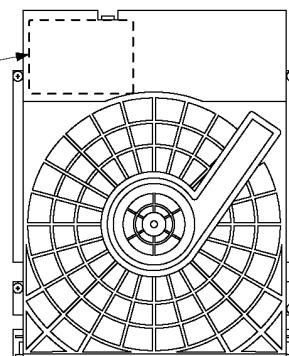
Wellenlänge: 790 nm (CDs)/ 650 nm (DVDs)/ 405 nm (BDs)

Maximale Strahlungsleistung der Lasereinheit: 100 μ W/VDE

Die Strahlung der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinheit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlinse blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.

CAUTION	- VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM. FDA 21 CFR/Class II (IIB)
CAUTION	- CLASS 1M VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS. IEC 60825-1:42/CLASS 1M
ATTENTION	- RAYONNEMENT LASER VISIBLE ET INVISIBLE, CLASSE 1M. EN CAS D'OUVERTURE, NE PAS REGARDER DIRECTEMENT À L'AIDE D'INSTRUMENTS D'OPTIQUE.
FORSIGTIG	- SYNLIG OG USYNLIG LASERSTRÅLING KLASSE 1M. NÅR I ÅGNET ER ÅBENT, UNDGÅ AT SE LIGE PÅ MED OPTISKE INSTRUMENTER.
VARO	- ÄVÄRTÄÄSSÄ OLET ALTTIINA LUOKAN 1M NÄKYYVÄÄ JA NÄKYMÄTÖNTÄ LASERISÄTEIÖVÄ. ÄLÄ KATSO OPTISELLA LAITTEELLA SUORAAN SÄTEESEEN.
VARNING	- KLASS 1M SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRÄKTA EJ STRÅLEN DIREKT GENOM OPTISKT INSTRUMENT.
VORSICHT	- SICHTBARE UND UNSICHTBARE LASERSTRALUNG KLASSE 1M. WENN ABDECKUNG GEÖFFNET, NICHT DIREKT MIT OPTISCHEN INSTRUMENTEN BETRACHTEN.
注意	- 打开时有可见及不可见激光辐射。避免光束照射。
注意	- ここを開くと肉眼及び不可視レーザー光が出ます。 ビームを見たり、覗いたりはしないでください。 VOL1V70



CAUTION!

THIS PRODUCT UTILIZES A LASER.

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

2.3. Service caution based on legal restrictions

2.3.1. General description about Lead Free Solder (PbF)

The lead free solder has been used in the mounting process of all electrical components on the printed circuit boards used for this equipment in considering the globally environmental conservation.

The normal solder is the alloy of tin (Sn) and lead (Pb). On the other hand, the lead free solder is the alloy mainly consists of tin (Sn), silver (Ag) and Copper (Cu), and the melting point of the lead free solder is higher approx.30 degrees C (86°F) more than that of the normal solder.

Definition of PCB Lead Free Solder being used

The letter of "PbF" is printed either foil side or components side on the PCB using the lead free solder.	PbF
(See right figure)	

Service caution for repair work using Lead Free Solder (PbF)

- The lead free solder has to be used when repairing the equipment for which the lead free solder is used.
(Definition: The letter of "PbF" is printed on the PCB using the lead free solder.)
- To put lead free solder, it should be well molten and mixed with the original lead free solder.
- Remove the remaining lead free solder on the PCB cleanly for soldering of the new IC.
- Since the melting point of the lead free solder is higher than that of the normal lead solder, it takes the longer time to melt the lead free solder.
- Use the soldering iron (more than 70W) equipped with the temperature control after setting the temperature at 350±30 degrees C (662±86°F).

Recommended Lead Free Solder (Service Parts Route.)

- The following 3 types of lead free solder are available through the service parts route.
RFKZ03D01KS----- (0.3mm 100g Reel)
RFKZ06D01KS----- (0.6mm 100g Reel)
RFKZ10D01KS----- (1.0mm 100g Reel)

Note

* Ingredient: tin (Sn), 96.5%, silver (Ag) 3.0%, Copper (Cu) 0.5%, Cobalt (Co) / Germanium (Ge) 0.1 to 0.3%

3 Service Navigation

3.1. Service Information

This service manual contains technical information which will allow service personnel's to understand and service this model.

Please place orders using the parts list and not the drawing reference numbers.

If the circuit is changed or modified, this information will be followed by supplement service manual to be filed with original service manual.

1) This service manual does not contain the following information, because of the impossibility of servicing at component level.

- * Schematic Diagram, Block Diagram and P.C.B. layout of BDP/Digital P.C.B. Module.
- * Parts List for individual parts of BDP/Digital P.C.B. Module.
- * Exploded View and Parts List for individual parts of BDP/Digital P.C.B. Module.

2) The following category are recycle module part. Please send them to Central Repair Center.

- * BDP/Digital P.C.B. Module (BD70VP : RFKNBD70VP)
(BD70VPC : RFKNBD70VPC)

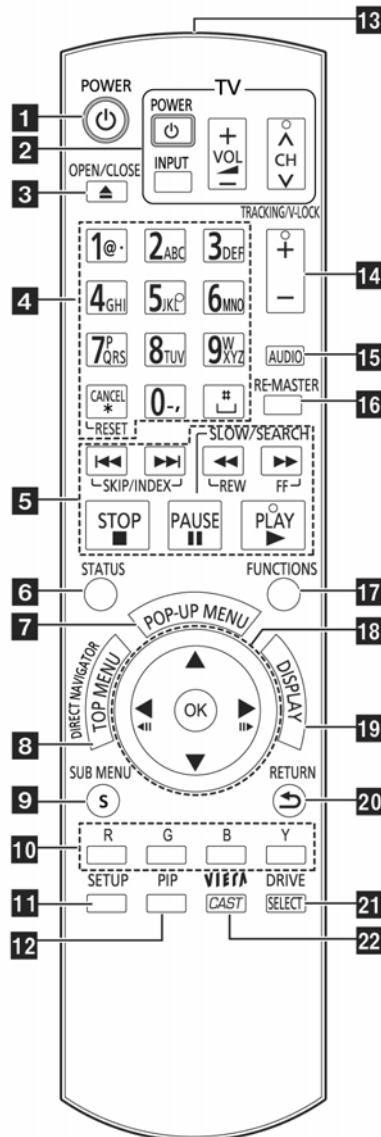
4 Specifications

Power supply	AC 120 V, 60 Hz		
Power consumption	Approx. 28 W		
Power consumption in standby mode	Less than 0.5 W		
Power consumption in quick start standby mode	6 W		
Optical pick-up	System with 2 lenses, (405 nm wavelength for BDs, 650 nm wavelength for DVDs, 790 nm wavelength for CDs)		
Media			
Playable disc	BD-Video	BD-ROM Version 2	
	BD-RE	Version 3 (Single Layer / Dual Layer), JPEG	
	BD-R	Version 2 (Single Layer / Dual Layer)	
	DVD - RAM	DVD Video Recording format, AVCHD format, JPEG	
	DVD-R/	DVD-Video format (*1), DVD Video	
	DVD-R DL	Recording format (*1), AVCHD format (*1), JPEG (*2), MP3 (*2)	
	DVD-RW	DVD-Video format (*1), DVD Video Recording format (*1), AVCHD format (*1)	
	+R/+R DL/	Video (*1), AVCHD format (*1)	
	+RW		
	DVD-VIDEO	DVD-Video format	
CD-Audio	CD-DA		
CD-R/CD-RW	CD-DA, JPEG (*2), MP3 (*2)		
	(*1) Finalizing is necessary.		
	(*2) ISO9660 level 1 or 2 (except for extended formats), Joliet.		
	This unit is compatible with multi-session.		
	This unit is not compatible with packet writing.		
SD Card	SD Memory Card (*3) formatted FAT12, FAT16, FAT32 (*4) JPEG, AVCHD format, MPEG-2 (*3) includes SDHC card includes miniSD™ cards (need a miniSD™ adaptor) includes microSD™ cards (need a microSD™ adaptor) (*4) not support long file name		
USB device	USB Standard : USB2.0 High Speed MP3, JPEG Format : FAT12, FAT16, FAT32		
VHS	Recording format:	VHS Video Cassette System Standard with FM audio	
	Heads:	4 helical scan heads for video 2 helical scan heads for FM audio 1 fixed head for Normal audio	
	Tape speed/recording time:	SP: 33.35 mm/s, 120min EP: 11.12 mm/s, 360 min (with T-120 cassette)	
	FF/REW time:	FF/REW: Approx. 60 s (with T-120 cassette) Jet REW: Approx. 43 s (with T-120 cassette)	
Contents			
JPEG SD card CD-R/RW DVD-RAM BD-RE DVD-R USB device	Pixels:	34 x 34 - 8192 x 8192	
	Sub sampling:	4:2:2, 4:2:0	
		Motion JPEG not supported	
	SD card:	JPEG conforming DCF (Design rule for Camera File System)	
	Thawing Time:	approx. 2 sec (7M pixels)	
	Maximum numbers of folders and files;		
	Maximum folders:	99(CD) / 300(SD card) / 300(DVD-RAM) / 300(BD-RE) / 300(DVD-R) / 300(USB device)	
	Maximum files:	999(CD) / 3000(SD card) / 3000(DVD-RAM) / 9999(BD-RE) / 3000(DVD-R) / 3000(USB device)	
MP3 CD-R/RW DVD-R USB device	Compression rate:	32 kbps - 320 kbps	
	Sampling rate:	44.1 kHz, 48 kHz	
AVCHD (H.264) SD card DVD	AVCHD format V1.0		

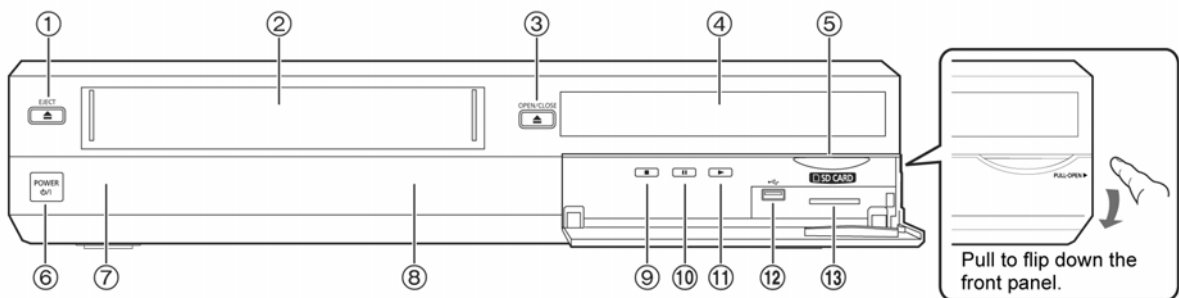
Region Code	DVD: #1 BD: Region A	
Playable disc (SL: Single Layer/ DL: Dual Layer)	BD-ROM(SL/DL): BD-RE(SL/DL): BD-R(SL/DL): DVD-ROM(SL/DL): DVD-RAM: DVD-R: DVD-R(DL): DVD-RW: +R: +R(DL): +RW: CD:	compliant Ver. 1.3 BD-MV BD-MV DVD-Video DVD-VR DVD-Video DVD-VR DVD-Video DVD-VR DVD-Video DVD-VR Video Video Video CD-DA, CD-R/RW
HDMI	480p(525p)/ 1080i(1125i)/ 720p(750p)/ 1080p(1125p) HDMI™ (Deep color, x.v.Color™ High Bit rate Audio) This unit supports "HDAVI Control 4" function.	
Signal system	NTSC	
Video output	Output level: Output connector:	1.0 Vp-p (75 Ω) Pin jack (1 system)
Component video output (1080i/ 720p/ 480p/ 480i)	Y output level: P _B output level: P _R output level: Output connector:	1.0 Vp-p (75 Ω) 0.7 Vp-p (75 Ω) 0.7 Vp-p (75 Ω) Pin jack (Y: green, P _B : blue, P _R : red) (1 system)
Audio output	Output level: Output connector: Number of connectors:	2 Vrms (1 kHz 0 dB) Pin jack 2 channel 1 system
Audio performance	Frequency response ▪DVD (linear audio) 4 Hz - 22 kHz (48 kHz sampling) 4 Hz - 44 kHz (96 kHz sampling) ▪CD-Audio 4 Hz - 20 kHz S/N ratio 115 dB Dynamic range 100 dB Total harmonic distortion 0.003%	
Digital audio output	Optical digital output	Optical terminal
HDMI AV output	Output format Output Connector	1080p/1080i/720p/480p Type A (19 pin)
SD card slot	Connector	1 system
USB slot	Connector	1 system
Ethernet	10BASE-T/ 100BASE-TX	1 system
Others		
Dimensions	Excluding the projecting parts: 430 (W) x 94 (H) x 335 (D) mm [Approx. 16 15/16" (W) x 3 11/16" (H) x 13 3/16" (D)] Including the projecting parts: 430 (W) x 94 (H) x 345 (D) mm [Approx. 16 15/16" (W) x 3 11/16" (H) x 13 9/16" (D)]	
Mass	Approx. 5.5 kg (12.1 lbs)	
Operating Temperature range	5°C - 35°C (41°F - 95°F)	
Operating Humidity range	10 % - 80 % RH (no condensation)	
LASER Specification		
	Class I LASER Product	
	Wave Length	405 nm(BDs), 650 nm(DVDs), 790 nm(CDs)
	Laser Power	No hazardous radiation is emitted with the safety protection.
Solder	These models use lead free solder (PbF)	

Notes : Mass and dimensions are approximate.
Specifications are subject to change without notice.

5 Location of Controls and Components



- 1 Turn the unit on and off
- 2 TV operation buttons
You can operate the TV through the unit's remote control.
[TV POWER] : Turn the television on and off
[INPUT] : Input select
[+ - VOL] : Adjust the volume
[^ v CH] : Channel select
- 3 Open or close the disc tray
- 4 Select title numbers, etc./Enter numbers or characters
(The character buttons may be used when operating VIERA CAST contents.)
[CANCEL] : Cancel/Reset the tape counter
- 5 Basic playback control buttons
- 6 Show status messages
- 7 Show Pop-up menu
- 8 Show Top menu/Direct Navigator
- 9 Show sub menu
- 10 These buttons are used when:
 - Operating a BD-Video disc that includes Java™ applications (BD-J). For more information about operating this kind of disc, please read the instructions that came with the disc.
 - Displaying "Title View" and "Album View" screens. (Only the [R] and [G] buttons)
 - Operating contents of VIERA CAST.
- 11 Show Setup menu
- 12 Switch on/off Secondary Video (Picture-in-picture)
- 13 Transmit the remote control signal
- 14 TRACKING/V-LOCK
- 15 Select audio
- 16 Reproduce more natural audio
- 17 Show FUNCTIONS menu
- 18 Selection/OK, Frame-by-frame
- 19 Show on-screen menu
- 20 Return to previous screen
- 21 Select drive (BD/DVD/CD, SD card, USB device, VHS)
- 22 Displays the Home screen of the VIERA CAST



- 1 Cassette eject button
- 2 Cassette compartment
- 3 Open or close the disc tray
- 4 Disc tray
- 5 SD Card LED
• It is possible to set the LED to turn on/off. (SD Card LED Control)
- 6 POWER button (POWER /I)
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.
- 7 Remote control signal sensor

- 8 Display

Disc indicator	SD card indicator	Tape indicator	USB access lamp

The indicator and access lamp blink when reading data from a card, or USB device, or writing data to a card.

- 9 Stop
- 10 Pause
- 11 Start play
- 12 USB port
- 13 SD card slot

6 Operating Instructions

6.1. (BD) Taking out the Disc from BD-Drive Unit when the Disc cannot be ejected by OPEN/CLOSE button

6.1.1. (BD) Forcible Disc Eject

6.1.1.1. (BD) When the power can be turned off.

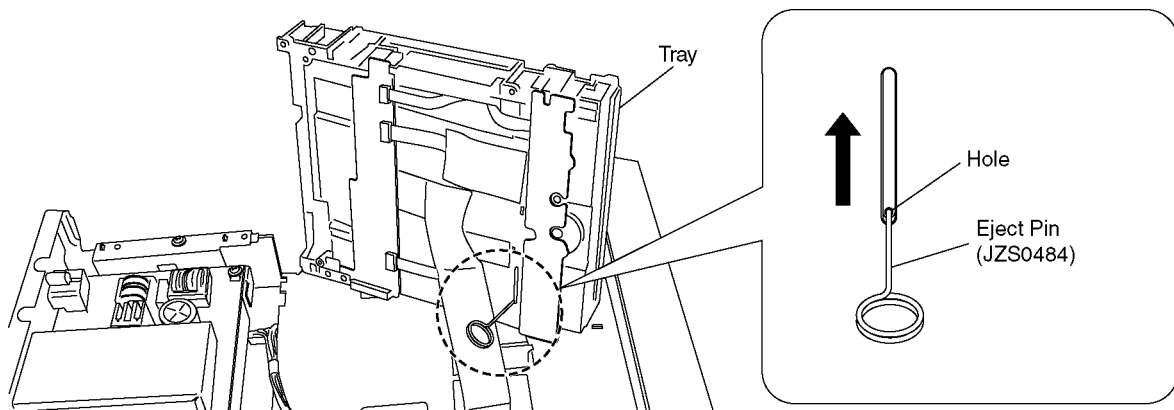
1. Turn off the power and press [PAUSE], [OPEN/CLOSE] keys on the front panel simultaneously for 5 seconds.

6.1.1.2. (BD) When the power can not be turned off.

1. Press [POWER] key on the front panel for over 4 seconds to turn off the power forcibly, and press [PAUSE] [OPEN/CLOSE] keys on the front panel simultaneously for 5 seconds.

6.1.2. (BD) When the Forcible Disc Eject can not be done.

1. Turn off the power and pull out AC cord.
2. Remove the Top Case and BD Drive.
3. Put BD Drive so that bottom can be seen.
4. Insert Eject Pin (JZS0484) into the hole on the bottom of BD Drive and slide the Eject Pin in the direction of the arrow to eject tray slightly.



5. Pull out tray by hand.

6.2. (VHS) Removing Cassette Tape manually

When the cassette tape could not be uninstalled from an electrical malfunction, there are 2 ways to remove a cassette tape.

6.2.1. (VHS) Removal by compulsory unloading.

If Service Mode can be activated when the power can not be turned on, this operation is able.

1. Press [STOP] and [EJECT] button simultaneously for more than 3 seconds and set the Service Mode to 7.
2. Press [STOP] button in order to unload the mechanism.
(Pay attention to tape slack)

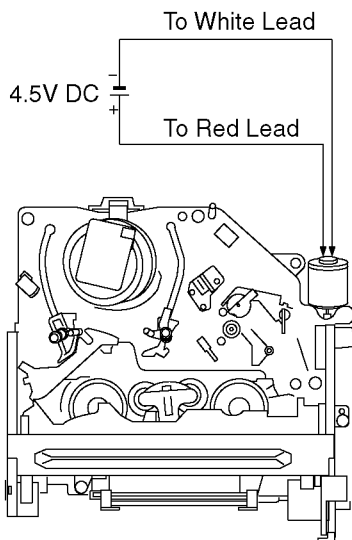
Service Mode Display:

7 ** ** (STOP) → 7 0L ** (EJECT)

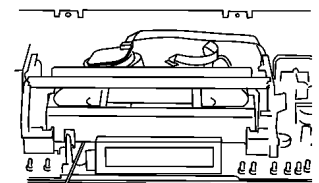
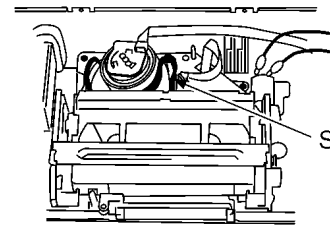
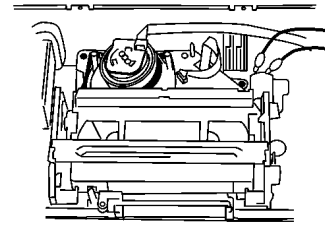
6.2.2. (VHS) Removal by manual operation by rotating the Loading Motor with the batteries.

1. Disconnect the AC plug, and remove the Top Case and the Front Panel by referring to the Disassembly Procedures.
2. Connect three batteries (1.5V spec.) to the Loading Motor in series for supplying 4.5V to rotate the Loading Motor as shown below.

CONNECTION for UNLOADING

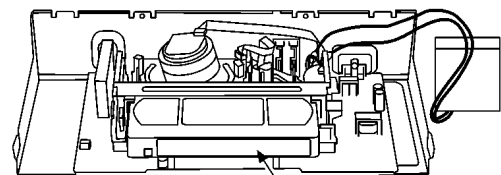


3. Stop unloading just before unloading will be completed as shown below, and then the tape becomes slack as shown below.
4. Rotate the S-Reel by a small minus screwdriver to remove the slack tape as shown below.



Minus Screw Driver
(Small)

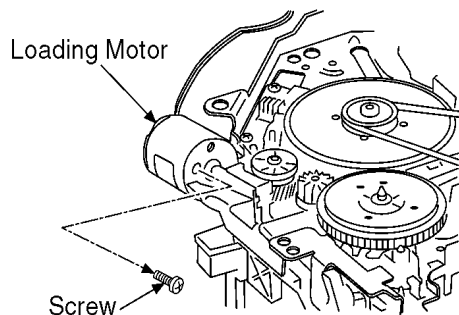
5. Then unload again to remove the Cassette Tape as shown below.



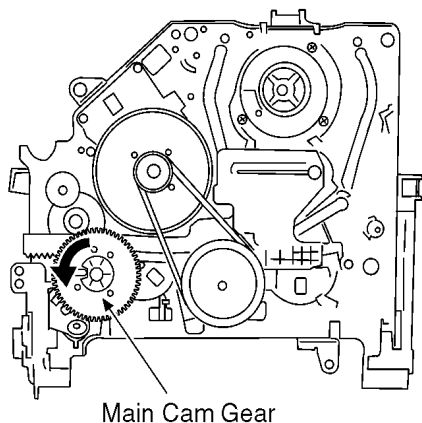
Cassette Tape

6.2.3. (VHS) Take out Cassette Tape manually after removing the mechanism

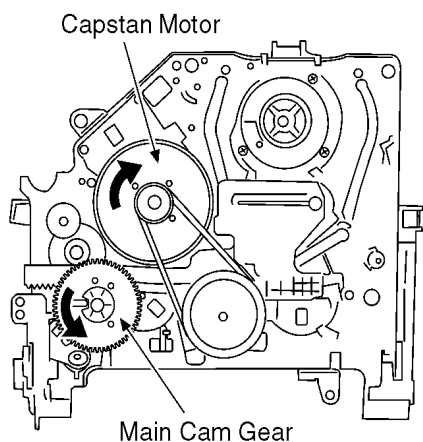
1. Disconnect the AC plug, and remove the Top Case, Front Panel and the Mechanism by referring to "9 Assembling and Disassembling"
2. Remove the Screw and remove the Loading Motor as shown below.



3. Rotate the Main Cam Gear counter-clockwise until just before the unloading will be completed as shown below.



4. Rotate the Capstan Motor clockwise to remove the slack tape as shown below.
5. Rotate the Main Cam Gear counter-clockwise again to remove the cassette-tape as shown below.



6. Attach Loading Motor and tighten the screw.
7. Set the Position Switch to EJECT POSITION certainly and attach the mechanism to chassis as shown below.

Fig. (B)

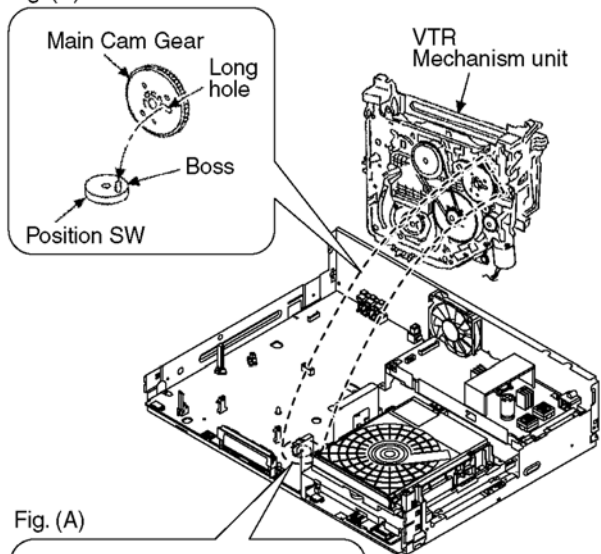
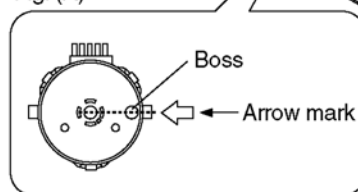


Fig. (A)



7 Service Mode

7.1. (DVD) Self-Diagnosis and Special Mode Setting

7.1.1. (DVD) Self-Diagnosis Functions

Self-Diagnosis Function provides information for errors to service personnel by "Self-Diagnosis Display" when any error has occurred.

U, H** and F** are stored in memory and held.**

You can check latest error code by transmitting [0] [1] of Remote Controller in Service Mode.

Automatic Display on FL will be cancelled when the power is turned off or AC input is turned off during self-diagnosis display is ON.

Error Code	Diagnosis contents	Description	Monitor Display	Automatic FL display
U30	Remote control code error	Display appears when main unit and remote controller codes are not matched.	No display	SET * * is remote controller code of the main unit. Display for 5 seconds.
U59	Abnormal inner temperature detected	Display appears when the drive temperature exceeds 70°C. The power is turned off forcibly. For 30 minutes after this, all key entries are disabled. (Fan motor operates at the highest speed for the first 5 minutes. For the remaining 25 minutes, fan motor is also stopped.) The event is saved in memory as well.	No display	U59 U59 is displayed for 30 minutes.
U71	HDMI incompatible error (HDCP incompatible)	Display this error when the equipment (compatible with DVI such as TV, amplifier etc.) connected to the unit by HDMI is incompatible with HDCP. *HDCP = High-bandwidth Digital Content Protection	No display	U71
U72	HDMI connection error (communication error)	This error is displayed when there are any communication problems with the unit and the equipments (TV, amplifier etc.) connected to the unit by HDMI. (or when there is a problem with the HDMI cable)		U72 U72 display disappears when error has been solved by Power OFF/ON of connecting equipment or by inserting/removing of HDMI cable.
U73	HDMI connection error (authentication error)	When authentication error occurs while the equipments (TV, amplifier etc.) are connected by HDMI. (or when there is a problem with the HDMI cable)	No display	U73 U73 display disappears when error has been solved by Power OFF/ON of connecting equipment or by inserting/removing of HDMI cable.
U76	Injustice disc error	HDMI cannot output because you are connected to a model that does not support copy-right protection.	No display	U76
F99	Hang-up	Displayed when communication error has occurred between Main microprocessor and Timer microprocessor.	No display	F99 Displayed is left until the [POWER] key is pressed.
H19	Inoperative fan motor	When inoperative fan motor is detected after powered on, the power is turned off automatically. The event is saved in memory.	No display	No display
F00	No error information	Initial setting for error code in memory (Error code Initialization is possible with error code initialization and main unit initialization.)	No display	No display

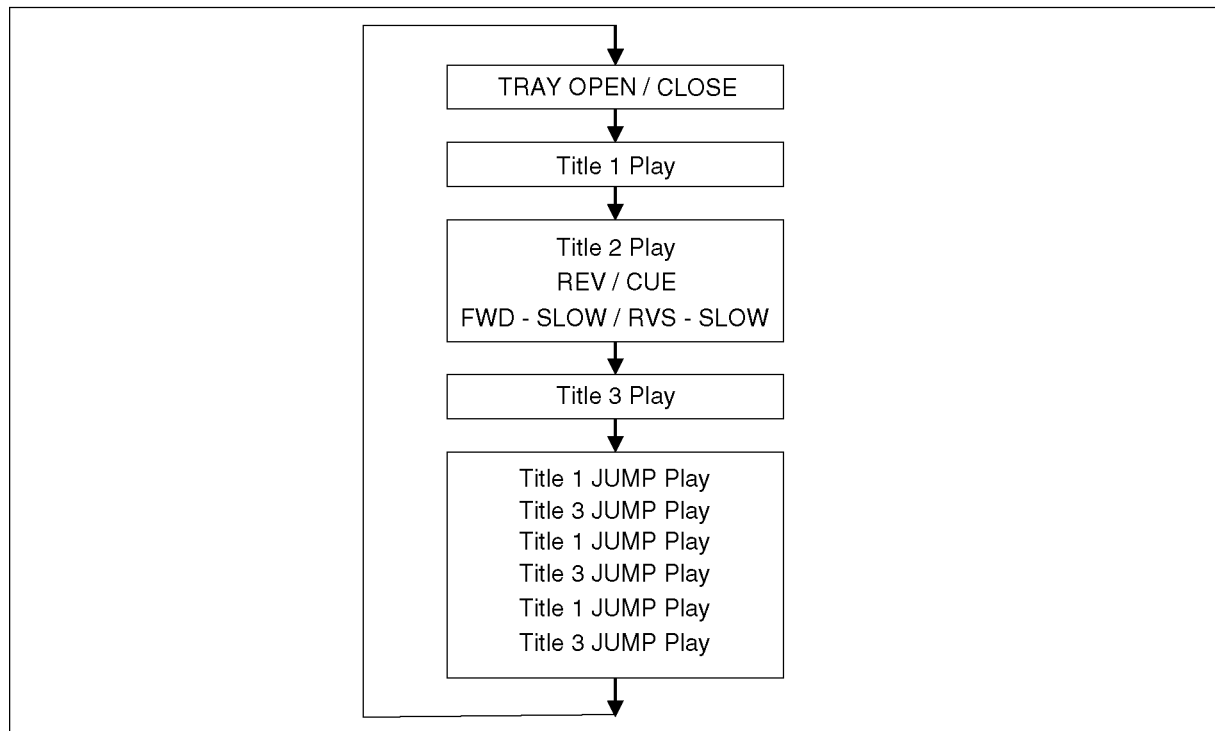
Error Code	Diagnosis contents	Description	Monitor Display	Automatic FL display
F09	Serial Communication Error between VHS Microprocessor and Timer Microprocessor.	Please confirm Serial Communication terminal of Microprocessor. NOTE: If F09 appears just after updating Firmware, pull off and insert AC plug, then it will disappear.	No display	F09
F34	Initialization error when main microprocessor is started up for program recording	When initialization error is detected after starting up main microprocessor for program recording, the power is turned off automatically. The event is saved in memory.	No display	No display
F58	Drive hardware error	When drive unit error is detected, the event is saved in memory.	No display	No display
F60	BD module has not been started.	Defect of Digital P.C.B. Mode: No change	No display	F60
UNSUPPORT	Unsupported disc error	*An unsupported format disc was played, although the drive starts normally. *The data format is not supported, although the media type is supported. *Exceptionally in case of the disc is dirty.	This disc is incompatible.	Display for 5 seconds. UNSUPPORT The character indication flows sideways.
NO READ	Disc read error	*A disc is flawed or dirty. *A poor quality failed to start. *The track information could not be read.	Cannot read. Please check the disc.	No READ The character indication flows sideways.
HARD ERR	Drive error	The drive detected a hard error.	BD drive error.	Display for 5 seconds. HARD ERR The character indication flows sideways.
SELF CHECK	Restoration operation	Since the power cord fell out during a power failure or operation, it is under restoration operation. *It will OK, if a display disappears automatically. If a display does not disappear, there is the possibility that defective Digital P.C.B. / BD drive.	No display	SELF CHECK The character indication flows sideways.
PLEASE WAIT	Unit is in termination process	Unit is in termination process now. "BYE" is displayed and power will be turned off.	No display	PLEASEWAIT The character indication flows sideways.
UNFORMAT	Unformatted disc error	You have inserted an unformatted BD-RE/BD-R/DVD-RAM/DVD-RW or raw +R/+R DL, or DVD-RW of DVD-Video format.	This disc is not formatted properly. Cannot be played.	UNFORMAT The character indication flows sideways.
No PLAY	When there is a viewing restriction on a BD-Video or DVD-Video.	Rating password is set.	No display	UNFORMAT The character indication flows sideways.

7.1.2. (BD) Special Modes Setting

Item		FL display	Key operation
Mode name	Description		Front Key
Rating password	The audiovisual level setting password is initialized to Level 8 .	INIT	Open the tray, and press [SKIP REV (Remote Controller)] and [PLAY] simultaneously for 5 seconds.
Service Mode	Setting every kind of modes for servicing. *Details are described in 7.1.3. (BD) Service Mode at a glance .	SERV	When the power is off, press [PAUSE], [PLAY] and [SETUP (Remote Controller)] keys simultaneously for 5 seconds.

Item		FL display	Key operation
Mode name	Description		Front Key
BD-ROM history cleaning	< Persistent Storage> of BD-ROM standard is cleaned. Screen display: [The history has been cleared] is displayed for five seconds.	***** Same display as before execution.	When the power is on, disc is not in tray, press [STOP] and [POWER (Remote Controller)] keys simultaneously for 5 seconds.
Forced disc eject	Removing a disc that cannot be ejected. The tray will open and unit will shift to P-off mode. While Demonstration Lock is being set, this Forced disc eject function is not accepted.	The display before execution leaves. *****	When the power is off, press [PAUSE] and [OPEN/CLOSE] keys simultaneously for 5 seconds.
Forced power-off	When the power button is not effective while power is ON, turn off the power forcibly.	Display in P-off mode.	Press [POWER] key over than 4 seconds.
Aging	Perform sequence of modes as * Aging Description shown below continually.	Display following the then mode.	When the power is ON, press [PAUSE], [PLAY] and [OPEN/CLOSE] simultaneously for over 5 seconds and less than 10 seconds. NOTE1: If the unit has hung-up because of pressing keys for over 10 seconds, once turn off the power, and re-execute this command. *When releasing Aging mode, press [POWER] key over 4 seconds.

Aging Contents (Example):



Item		FL display	Key operation
Mode name	Description		Front Key
Demonstration lock/unlock	Ejection of the disc is prohibited. The lock setting is effective until unlocking the tray and not released by Main unit initialization of service mode.	*When lock the tray. LOCK LOCK is displayed for 3 seconds.	When the power is on (SS mode), press [PLAY] and [OPEN/CLOSE] keys simultaneously for 5 seconds. Note: When a disc is not in tray, this setting is not effective.
		*When unlock the tray. UNLOCK UNLOCK is displayed for 3 seconds.	When the power is on (SS mode), press [PLAY] and [OPEN/CLOSE] keys simultaneously for 5 seconds.
		*When press OPEN/CLOSE key while the tray being locked. LOCK Display LOCK for 3 seconds.	Press [OPEN/CLOSE] key while the tray is being locked.
Progressive initialization	The progressive setting is initialized to Interlace.	The display before execution leaves. *****	When the power is on (SS mode), press [STOP] and [PLAY] simultaneously for 5 seconds.
Default setting	The date of Menu, Mode and EEPROM setting, etc. is set to the default condition in factory.	HELLO ↓ BYE HELLO, BYE are displayed.	When the power is off, press [PAUSE], [POWER] and [OPEN/CLOSE] simultaneously for 5 seconds.

7.1.3. (BD) Service Modes at a glance

Service mode setting: While the power is off, press [PAUSE], [PLAY] and [SETUP (Remote Controller)] simultaneously for five seconds.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Release Items	Item of Service Mode executing is cancelled.	SERV	Press [0] [0] in service mode.
Error Code Display	Last Error Code of U/H/F held by Timer is displayed on FL. *Details are described in 7.1.1. (BD) Self-Diagnosis Functions.	* ♣ shows U/H/F. □ □ shows number. If any error history dose not exist, [F00] is displayed.	Press [0] [1] in service mode
ROM Version Display	1. Region code (displayed for 5 sec.) 2. Main firm version (displayed for 5 sec.) 3. Timer firm version (displayed for 5 sec.) 4. Drive firm version (displayed for 5 sec.) 5. ROM correction version (displayed for 5 sec.) 6. VHS Microprocessor version (displayed for 5 sec.) 7. VHS ROM correction version (displayed for 5 sec.) 8. B002 version (displayed for 5 sec.) 9. B003 version (left displayed)	1. NO\$% \$: Region of DVD (Example: 1,2.....) %: Region of BD (Example: A,B.....) 2. **** 3. ***** 4. **** 5. *** 6. ***** 7. *** 8. *** 9. *** * are version displays.	Press [0] [2] in service mode
Drive application check	Checking whether the drive is applicable drive or not.	When the drive is applicable drive. DRV OK When the drive is not applicable drive. DRV NG	Press [0] [3] in service mode.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
Drive check	Simple quality of BD drive.	When BD drive is OK and a drive error is not stored in EEPROM. DRV OK When BD drive is NG or drive errors are stored in EEPROM. DRV NG	Press [3] [8] in service mode.
Laser Used Time Indication	Check laser used time (hours) of drive.	Laser used time: BD Playback BP * * * * Laser used time: BD Recording BR * * * * Laser used time: DVD Playback DP * * * * Laser used time: DVD Recording DR * * * * Laser used time: CD Playback CD * * * * l(****) is the used time display in hour. lLaser used time of BD/ DVD/ CD in Playback/Recording mode is counted.	Press [4] [1] in service mode.

Item		FL display	Key operation
Mode name	Description		(Remote controller key)
BD drive last error	BD drive error code display.	1. Error Number is displayed for 5 seconds. NO ** 2. Please ignore this display. ***** 3. Last drive error (1/2) is displayed for 5 seconds. ***** 00 : Bad disc 03 : Bad disc 04 : Bad disc or drive malfunction 4. Last drive error (2/2) is displayed for five seconds. ***** 5. Error occurring disc type is displayed for 5 seconds. DVD-RW DVDRW CD-R CDR CD-RW CDRW DVD+R DVDPR DVD+RW DVDPRW BD-ROM BDROM	Press [4] [2] in service mode.

Item		FL display	Key operation (Remote controller key)												
Mode name	Description														
		BD-RE BDRE BD-R BDR DVD ROM DVD CD CD RAM (2.6GB) RAM26 RAM (4.7GB) RAM47 DVD-R DVDR Others MEDIA* * is displayed the respoced value from RTSC.													
		6. Disc maker ID is displayed for 5 seconds. ***** 7. Factor of drive error (hexadecimal) occurring is left displayed. * * + + □ □ * * : Error occurring operation code (This is not used) + + : Error occurring disc type <table><tr><td>00</td><td>DVD-ROM</td></tr><tr><td>01</td><td>CD</td></tr><tr><td>02</td><td>2.6GB DVD-RAM</td></tr><tr><td>03</td><td>4.7GB DVD-RAM</td></tr><tr><td>04</td><td>DVD-R</td></tr><tr><td>After 05</td><td>Others</td></tr></table>	00	DVD-ROM	01	CD	02	2.6GB DVD-RAM	03	4.7GB DVD-RAM	04	DVD-R	After 05	Others	In case that the maker cannot be identified, display is black out.
00	DVD-ROM														
01	CD														
02	2.6GB DVD-RAM														
03	4.7GB DVD-RAM														
04	DVD-R														
After 05	Others														

Item		FL display	Key operation (Remote controller key)																																																																																									
Mode name	Description																																																																																											
		□□ : Error occurring disc situation <table><tr><th rowspan="2">Display</th><th colspan="4">Detail</th></tr><tr><th>Disc distinction</th><th>With or without Cartridge</th><th>Disc cart-ridge state</th><th>Size</th></tr><tr><td>00</td><td>OK</td><td>_____</td><td>_____</td><td>12cm</td></tr><tr><td>10</td><td>OK</td><td>_____</td><td>_____</td><td>8cm</td></tr><tr><td>20</td><td>OK</td><td>_____</td><td>_____</td><td>12cm</td></tr><tr><td>30</td><td>OK</td><td>_____</td><td>_____</td><td>8cm</td></tr><tr><td>40</td><td>OK</td><td>_____</td><td>_____</td><td>12cm</td></tr><tr><td>50</td><td>OK</td><td>_____</td><td>_____</td><td>8cm</td></tr><tr><td>60</td><td>OK</td><td>_____</td><td>_____</td><td>12cm</td></tr><tr><td>70</td><td>OK</td><td>_____</td><td>_____</td><td>8cm</td></tr><tr><td>80</td><td>NG</td><td>_____</td><td>_____</td><td>12cm</td></tr><tr><td>90</td><td>NG</td><td>_____</td><td>_____</td><td>8cm</td></tr><tr><td>A0</td><td>NG</td><td>_____</td><td>_____</td><td>12cm</td></tr><tr><td>B0</td><td>NG</td><td>_____</td><td>_____</td><td>8cm</td></tr><tr><td>C0</td><td>NG</td><td>_____</td><td>_____</td><td>12cm</td></tr><tr><td>D0</td><td>NG</td><td>_____</td><td>_____</td><td>8cm</td></tr><tr><td>E0</td><td>NG</td><td>_____</td><td>_____</td><td>12cm</td></tr><tr><td>F0</td><td>NG</td><td>_____</td><td>_____</td><td>8cm</td></tr></table>	Display	Detail				Disc distinction	With or without Cartridge	Disc cart-ridge state	Size	00	OK	_____	_____	12cm	10	OK	_____	_____	8cm	20	OK	_____	_____	12cm	30	OK	_____	_____	8cm	40	OK	_____	_____	12cm	50	OK	_____	_____	8cm	60	OK	_____	_____	12cm	70	OK	_____	_____	8cm	80	NG	_____	_____	12cm	90	NG	_____	_____	8cm	A0	NG	_____	_____	12cm	B0	NG	_____	_____	8cm	C0	NG	_____	_____	12cm	D0	NG	_____	_____	8cm	E0	NG	_____	_____	12cm	F0	NG	_____	_____	8cm	
Display	Detail																																																																																											
	Disc distinction	With or without Cartridge	Disc cart-ridge state	Size																																																																																								
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E0	NG	_____	_____	12cm																																																																																								
F0	NG	_____	_____	8cm																																																																																								
CEC (H) output	Check of the CEC terminal high output of HDMI.	When the check is OK CECHOK When the check is NG CECHNG	Press [5] [5] in service mode.																																																																																									
CEC (L) output	Check of the CEC terminal low output of HDMI.	When the check is OK CECLOK When the check is NG CECLNG	Press [5] [6] in service mode.																																																																																									
Tray OPEN/CLOSE Test	The BD drive tray is opened and closed repeatedly.	***** * is number of open/close cycle times.	Press [9] [1] in service mode *When releasing this mode, press the [POWER] button of Remote Controller more than 4 seconds.																																																																																									
Delete the Laser Used Time	Laser used time stored in the memory of the unit is deleted.	CLR	Press [9] [5] in service mode.																																																																																									
Delete the Last Drive Error	Delete the Last Drive Error information stored on the BD Drive.	CLR	Press [9] [6] in service mode.																																																																																									
Delete the Error History	Delete Error History information stored on the unit.	CLR	Press [9] [7] in service mode.																																																																																									
Error code initialization	Initialization of the last error code held by timer (Write in F00)	CLR	Press [9] [8] in service mode.																																																																																									
Initialize Service	Last Drive Error, Error history and Error Codes stored on the unit are initialized to factory setting.	CLR	Press [9] [9] in service mode.																																																																																									
Finishing service mode	Release Service Mode.	Display in STOP (SS) mode. *****	Press power button on the front panel or Remote controller in service mode.																																																																																									

7.2. (VHS) Self-Diagnosis and Special Mode Setting

7.2.1. (VHS) Self-Diagnosis Functions

This model has a self-diagnosis and display function. If the VHS section detects trouble during installation or during use, one of the following Error Codes will automatically appear in the display on VHS side. Error Codes are displayed in the form of a single English letter followed by two numbers, as for example "H01".

Note:

1. The indication "U" is displayed on the FIP while power remains on.
2. The indication "H" or "F" is displayed on the FIP, and the power is automatically turned off. When the power is turned on again, the Error indication code will disappear and the unit will return to normal display mode (either clock or counter is displayed).
3. This Error indication code will be stored in the microprocessor even after the AC plug being disconnected.
The two-digit number portion of the stored Error indication code can be re-displayed in "second" display portion (the last 2 digits of the FIP) by placing the unit in Service Mode Number 3. When turning on Service Data Display as for example "01" or "02" etc. If a second error occurs, the most recent error will be displayed and stored until 3 self-diagnosis histories in maximum.
4. To erase the stored Error Code data, Press STOP and EJECT buttons on VCR simultaneously for over 5 seconds in Service Mode 3.

Example of Error Indication on the FIP

U, H or F 0 5



Hour	10min.	1min.	10sec.	1sec.
Blank	Blank	Management Sign	Service Data No.	

Division of Management

Management Sign	Management Division
U	User can deal with.
H	Shop can deal with.
F	It should be dealt with in service shop.

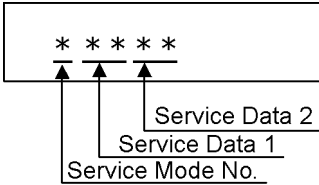
Error Number at a glance

Memory No. (Error No.)	Reason	Automatic display	Memory
H01	The cylinder could not be started. (Error of the cylinder or the cylinder driver.)	Yes	Yes
H02	The CAP FG could not be detected.	Yes	Yes
F03	Mechanism lock during without the unloading and the cassette-up.	Yes	Yes
F04	Mechanism lock during unloading	Yes	Yes
F05	S-reel pulse cannot be detected when a cassette tape is inserted. (Error of the S-reel system or the Capstan system.)	No	Yes
F06	Mechanism lock during the Cassette-up.	Yes	Yes
F09	Communication Error between VHS Microprocessor (IC6001) and Timer Micro-processor (IC57001)	Yes	Yes
H07	The recording circuit can not be operated in REC mode. (Not Used)	Yes	Yes
H08	The recording circuit is operated in except for REC mode. (Not Used)	Yes	Yes
U11	Cylinder clogs during the PLAY mode.	Yes	Yes
F15	S-reel pulse cannot be detected when a cassette tape is inserted. (Error of the S-reel system or the Capstan system.)	No	Yes
H16	Detection of the Cylinder lock during the constant rotation	No	Yes
H17	Detection of S-reel lock during the constant tape running	Yes	Yes
H18	Detection of T-reel lock during the constant tape running	Yes	Yes
F20	NG1 in the PG Shifter Automatic Adjustment (The cylinder rotation is unstable during the automatic adjustment.)	Yes	Yes
F21	NG2 in the PG Shifter Automatic Adjustment (The vertical sync signal is lacked while over 5 seconds on the alignment tape.)	Yes	Yes
F22	NG3 in the PG Shifter Automatic Adjustment (The installing position of Heads to the cylinder is out of specification.)	Yes	Yes
F23	NG4 in the PG Shifter Automatic Adjustment (The servo is not locked to the cylinder for more than 10 sec.)	Yes	Yes
H80	An exceptional ejection depends on a Error	No	Yes

7.2.2. (VHS) Special Modes Setting

NOTE:

OPERATION SELECT should be set to VHS.

Item		FL display	Key operation
Mode name	Description		Front Key
Tracking Center	Tape Tracking is adjusted to center FIX position.	No display.	Press [CH UP] and [CH DOWN] keys simultaneously.
VHS Service Mode	In order to make service easy, a part of inside information of a microprocessor is displayed on FIP. *Details are described in "7.2.3. (VHS) Service Modes".		Press [STOP], and [EJECT] keys simultaneously for 3 seconds when power is off.
Eject	Ejecting Cassette Tape	No display.	Press [STOP] key for 3 seconds or press [STOP] key of the Remote Controller for 3 seconds in VHS mode.

7.2.3. (VHS) Service Modes

<Service Mode Setting>

Set OPERATION SELECT to VHS.

When power is OFF, press [STOP] and [EJECT] keys simultaneously for 3 seconds to into Service Mode.

In Service Mode, press [STOP] and [EJECT] keys simultaneously to add Service Number.

7.2.3.1. (VHS) Service Mode and Service Data at a glance

Service Number	Contents	Contents of Indication on minute	Contents of Indication on second	Remarks
0	Indication for the inner data of IC6001	VHS mode (Real time)	Process number (Real time)	
		VCR mode (OPM)	Management number of the processing during mechanism shifting	
1	Indication for the inner data of IC6001	Starting / finishing edges detecting data (Real time)	Data of receiving key (Real time)	
		00: Both starting / finishing edges have not been 01: Starting edge is detecting now 02: Finishing edge is detecting now 03: Both starting / finishing edges are detecting now	Indicate the receiving code when the key of VCR or remote controller being operated.	
2	Indication for the inner data of IC6001	Mechanism position (Real time) 0L: EJECT position 02: DOWN position 03: RREW position 04: LOAD position 05: REV position 06: PLAY position 07: POFF position 08: STOP_R position 09: STOP_F position - : FF/REW position - : Intermediate between each positions	Ordering for the Motors (Real time) 0*, 2*: CYL off, CAP off 1*: CYL off, CAP on (fwd) 3*: CYL off, CAP on (rev) 8*, A*: CYL on, CAP off 9*: CYL on, CAP on (fwd) B*: CYL on, CAP on (rev) *0: Motor off *1: Loading *2: Unloading *3: Break (Load + Unload)	There are next conditions in this mode for enable the mechanism operations without a cassette tape. 1 The starting / finishing edges are not detected. 1 The reel lock is not detected 1 The tape and the positions are not detected. , And so on. Press the EJET key for over 3 seconds in this mode, and then the VCR is shifted into the special modes, such as PG Adjustment, Model Code Setting, and so on. The orders for the motors are as follows. Bit 7: CYL ON/OFF Bit 6: ----- Bit 5: CAP FWD/REV Bit 4: CAP ON/OFF Bit 3: ----- Bit 2: ----- Bit 1: UNLOADING(H) Bit 0: LOADING(H)

Service Number	Contents	Contents of Indication on minute	Contents of Indication on second	Remarks
3	Self-diagnosis history (1st)	Error number of history 1	Supplementary data 1 and 2 of history 1.	In the Self-Diagnosis Memory, next 3 BYTE is memorized for an Error. 1 BYTE: Its Error number 2 BYTE: Its supplementary data In these modes, the supplementary data 3 and 4 instead of the Error number and supplementary data 1 and 2 are indicated only while pressing STOP key.
4	Self-diagnosis history (2nd)	Error number of history 2	Supplementary data 1 and 2 of history 2.	
5	Self-diagnosis history (3rd)	Error number of history 3	Supplementary data 1 and 2 of history 3.	
6	Indication for the inner data of IC6001	Real time servo data (4 digits)		
		Higher rank 1 BYTE of SERVO data	Lower rank 1 BYTE of SERVO data	
7	Manual mechanism operation	Real time mechanism position 0L: EJECT position 02: DOWN position 03: RREW position 04: LOAD position 05: REV position 06: PLAY position 07: POFF position 08: STOP_R position 09: STOP_F position - : FF/REW position - : Intermediate between each positions	Real time ordering for the Motors 0*, 2*: CYL off, CAP off 1*: CYL off, CAP on (fwd) 8*, A*: CYL on, CAP off 9*: CYL on, CAP on (fwd) B*: CYL on, CAP on (rev) *0: Motor off *1: Loading *2: Unloading *3: Break (Load + Unload)	Press the STOP key, and then the cassette tape is unloaded.

7.2.3.2. Example of FIP

4	0	3	1	2
HOUR	10min.	1min.	10sec.	1sec.
Service No.	Service Data 1		Service Data 2	

7.2.4. (VHS) Self-Diagnosis History Memory Function

7.2.4.1. (VHS) Condition for memorizing of the self-diagnosis history

1. The self-diagnosis result and the supplementary data are the condition memorized just as an Error is detected.
2. There are the histories from number 1 to number 3.
3. The latest Error is memorized on history number 1, and then the old histories are shifted to the history number 2, 3.
4. Put out data from the memory number 3 by the shift is deleted.
5. If the latest Error is same with the history number 1 (2nd-latest), it is not memorized.
(The same Error number is not memorized in succession)

7.2.4.2. (VHS) Condition for clearing the self-diagnosis history

1. A case of that press the STOP key and the EJECT key simultaneously over 5 seconds.

7.2.4.3. (VHS) Indication of the self-diagnosis history.

1. The self-diagnosis histories and its supplementary data could be indicated on the FIP with Service mode of number from 3 to 5.
2. The procedure of setting the service mode and the format if the indication are same as usual.

FIP INDICATION: 4 0 3 5 2

Hour of one-digit	Minute of two-digit	Minute of one-digit	Second of two-digit	Second of one-digit
Service mode number	Error number		Supplementary Data	
3	Number of history 1 (The latest)		Supplementary data 1 of history 1	Supplementary data 2 of history 1
4	Number of history 2 (2nd latest)		Supplementary data 1 of history 2	Supplementary data 2 of history 2
5	Number of history 3 (3rd latest)		Supplementary data 1 of history 3	Supplementary data 2 of history 3

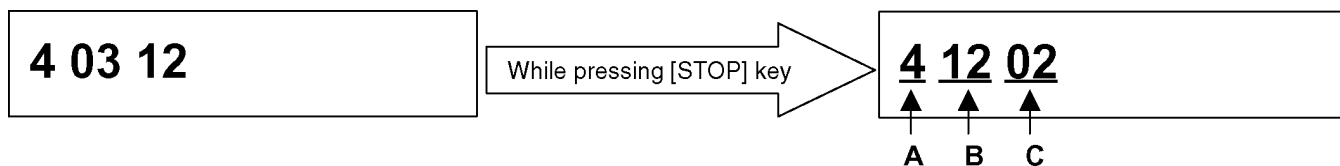
Both the Error numbers and its supplementary data of history 1, 2 and 3 are indicated by selecting the Service mode 3, 4 and 5 as shown above.

In case of that any Error has not been memorized, the Error number and its supplementary data is indicated as " - ".

7.2.4.4. (VHS) Display of Supplementary Data 3 and 4

During displaying the Self-Diagnosis History, press [STOP] key on front panel to change the display.

*Example of Display



A: Service Mode Number.

B: Supplementary Data 3...Mechanism process shifting Number.

C: Supplementary Data 4...LM(Load Motor information)

*Display of **4 12 02** means that " Loading Motor turns ON when [EJECT] button was pressed, but an error has occurred while mechanism was between REV position and LOAD position.

<Supplementary Data 3>

[EJECT]	[FF]	[REW]
10: PLAY → passing REV	U0: PLAY → STOP F	A0: PLAY → STOP F
11: passing REV	U1: STOP F → FF	A1: STOP → REW
12: passing REV → LOAD (Capstan STOP)	U2: FF starting up	A2: REW starting up
13: LOAD → DOWN		
14: DOWN → EJECT		
15: EJECT completion		
[PLAY]	[REC]	[STILL]
20: Cylinder starting up, Phase drawing	30: Cylinder starting up, Phase drawing	40: Turning forward
21: Audio muting, VV selection	31: REC signal output	41: Speed is 0, Capstan is OFF
[P.ON]	[STILL → PLAY]	[CUE]
-- Process of turning on power	48: Tape sending	49: x2 speed sending, Turning point of Calculating remains
[P.OFF]	[CUE → PLAY]	[REV]
70: PLAY → P.OFF	4A: Finishing edge Checking, Tape sending	80: PLAY → P.OFF
	4-: PLAY Checking, Tape sending	81: Rewinding
		P.OFF → REV

<Supplementary Data 4> (LM Information)
Result of request of driving Loading Motor.

Display	Description
1	There was no change of mechanism position. (Loading Motor was OFF)
2	There was some change of mechanism position. (Loading Motor was ON)

7.2.5. (VHS) Description of Self Diagnosis Memory

In this Self-Diagnosis Function, in case error has occurred continuously, maximum of the newest 3 error data are memorized.

And in order to analyze cause of error, the error number and the supplementary data of mode, mechanism position and so on are memorized.

7.2.5.1. (VHS) Error Number and Supplementary Data

The Supplementary Data as shown below are memorized to each error number.

Error No.	Reason	Supplementary Data			
		Data 1	Data 2	Data 3	Data 4
01	The cylinder could not be started. (Error of the cylinder or the cylinder driver.)	VHS mode	-	-	-
02	The CAP FG could not be detected.	VHS mode	-	Process No.	Number of FG
03	Mechanism lock during without the unloading and the cassette-up.	VHS mode	Standby position	Process No.	LM information
04	Mechanism lock during unloading	VHS mode	-	Process No.	LM information
05	S-reel pulse cannot be detected when a cassette tape is inserted. (Error of the S-reel system or the Capstan system.)	VHS mode	Tape position	Process No.	LM information
06	Mechanism lock during the Cassette-up.	VHS mode	Standby position	Process No.	LM information
07	The recording circuit can not be operated in REC mode.	VHS mode	-	Process No.	-
08	The recording circuit is operated in except for REC mode.	VHS mode	-	Process No.	-
09	Serial communication Error between VHS Microprocessor (IC6001) and Timer Microprocessor (IC57001).	-	-	-	-
11	Cylinder clogs during the PLAY mode.	VHS mode	-	Process No.	-
15	S-reel pulse cannot be detected when a cassette tape is inserted. (Error of the S-reel system or the Capstan system.)	VHS mode	Value of S-Reel Pulse counted	Process No.	-
16	Detection of the Cylinder lock during the constant rotation	VHS mode	Tape position	Process No.	-
17	Detection of S-reel lock during the constant tape running	VHS mode	Tape position	Process No.	Number of FG
18	Detection of T-reel lock during the constant tape running	VHS mode	Tape position	Process No.	Number of FG
20	NG1 in the PG Shifter Automatic Adjustment (The cylinder rotation is unstable during the automatic adjustment.)	VHS mode	-	Process No.	-
21	NG2 in the PG Shifter Automatic Adjustment (The vertical sync signal is lacked while over 5 seconds on the alignment tape.)	VHS mode	-	Process No.	-
22	NG3 in the PG Shifter Automatic Adjustment (The installing position of Heads to the cylinder is out of specification.)	VHS mode	-	Process No.	-
23	NG4 in the PG Shifter Automatic Adjustment (The servo is not locked to the cylinder for more than 10 sec.)	VHS mode	-	Process No.	-
80	An exceptional ejection depends on a Error	VHS mode	Refer to *Note 3	Process No.	-

Note 1: Details of "VHS mode" of the Supplementary Data 1 (These values are hexadecimal indication)

0: STOP, 1: EJECT, 2: REW, 3: FF, 4:REV, 5: CUE, 6: SLOW, 7: POWEROFF, 8: PLAY, 9: STIL,
A: REC, B: REC PAUSE, C: ADUB, D: ADUB PAUSE, E: INSERT, F: INSERT PAUSE

Note 2: Explanation of "Tape position" of the Supplementary Data

The Tape position Data is the area data of S-reel that is used for judgment of reducing speed in the Main microprocessor IC6001, and as the tape position is moved from the starting edge to the finishing edge, the value becomes smaller.

The Tape Data does not become "0" even if the tape reaches the finishing edge as the hub remains, and the tape position values are different between the large hub and the small hub as the each diameters are different from each other.

Tape Type	The aim of Tape position between the starting edge and the finishing edge
60 min. or less type (Large Hub)	The Tape position is divided into 6 stages between the Tape beginning edge: "A " and the Tape end edge: "5".
90 min. or over type (Small Hub)	The Tape position is divided into 14 stages between the Tape beginning edge: "E " and the Tape end edge: "1".

1 "A" and "E" is hexadecimal. "A" =10 (Decimal), "E" =14 (Decimal).

1 Hexadecimal indication from "A" to "E" are shown below.

A: □	B: □	C: —	D: □	E: □	F: □
------	------	------	------	------	------

Tape position and Display

	Tape													
	Beginning Edge				Center						Finishing edge			
Display of Data 2														
Over T-90 (Small Hub)	L	n	--	A	U	9	8	7	6	5	4	3	2	1
Under T-60 (Large Hub)	U			9		8		7		6				5

Note 3: Supplementary Data 2 (Reason of Ejection)

Supplementary Data 2	Reason
1	S-reel pulse is less than 3 when the loading has been completed. (Miss catching the tape)
2	Pulse Timer over during the short rewind at the DOWN position. (Error of S-photo sensor system, S-reel system, Capstan system)
3	Mechanism lock from the DOWN position to the LOAD position during the loading.
4	Both ends have been detected at the LOAD position when the loading is started.

8 Service Fixture & Tools

(For BD)

Part Number	Description	Compatibility
RFKZ0168	Extension Cable (Main P.C.B. - FAN / 3 Pin)	Same as E50 / ES30V / ES40V Series
RFKZ0420	Extension Cable (Digital P.C.B. - Power P.C.B. / 4 Pin)	Same as E100H Series
RFKZ0327	Extension Cable (Main P.C.B. - Digital P.C.B. / 15 Pin / 40 mm)	Same as ES40V Series
RFKZ0216	Extension Cable (Main P.C.B. - Digital P.C.B. / 23 Pin)	Same as EH55 Series
	Extension Cable (Power Sub P.C.B. - Digital P.C.B. / 23 Pin)	
RFKZ0367	Extension Cable (Main P.C.B. - Front (L) P.C.B. / 6 Pin)	Same as EH55 Series
	Extension Cable (Digital P.C.B. - Front (R) P.C.B. / 6 Pin)	
JZS0484	Eject Pin	Same as ES15 / E50 Series
RFKZ03D01KS	Lead Free Solder (0.3mm/100g Reel)	Same as ES15 Series
RFKZ06D01KS	Lead Free Solder (0.6mm/100g Reel)	Same as ES15 Series
RFKZ10D01KS	Lead Free Solder (1.0mm/100g Reel)	Same as ES15 Series
RFKZ0316	Solder Remover (Lead free low temperature Solder/50g)	Same as ES15 Series
RFKZ0328	Flux	Same as ES15 Series

(For VHS)

Part Number	Description	Compatibility
VFM8080HQFP	NTSC VHS Alignment Tape	Same as E75V / ES30V / ES40V Series
VFK0329	Post Adjustment Screwdriver	Same as E75V / ES30V / ES40V Series
VFK0330	Fine Adjustment Gear Driver	Same as E75V / ES30V / ES40V Series

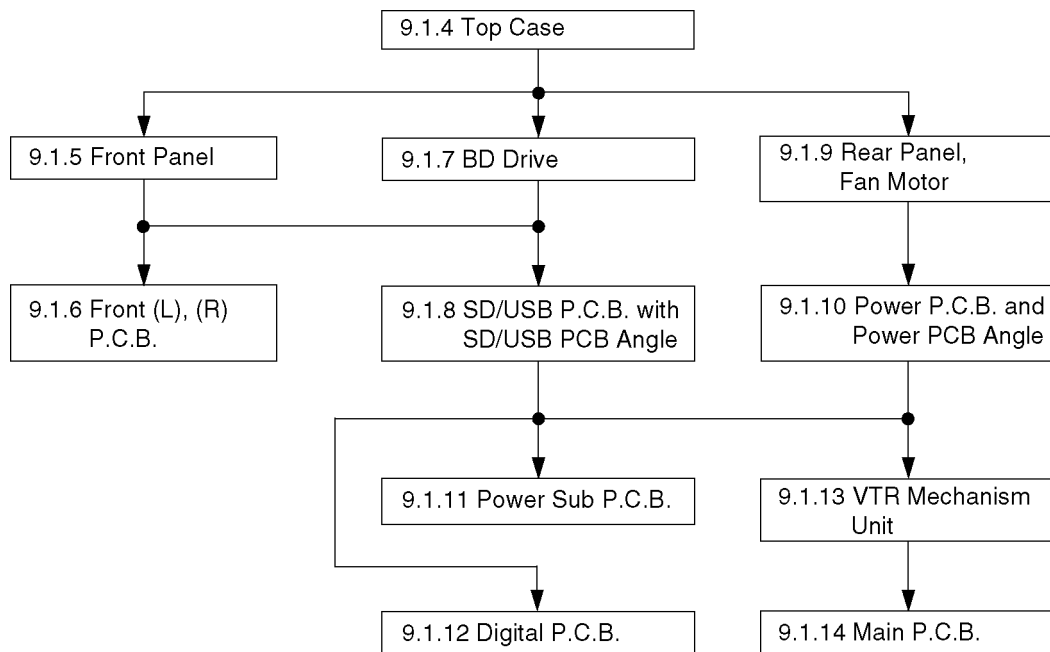
9 Disassembly and Assembly Instructions

9.1. Unit

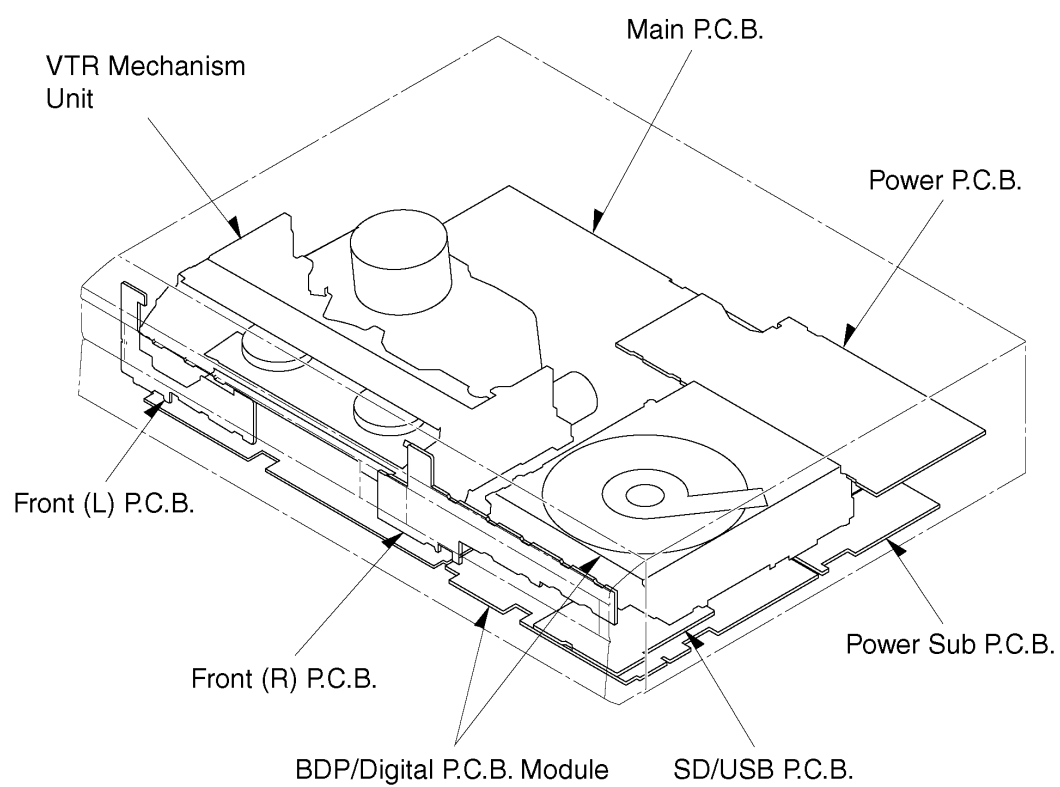
9.1.1. Disassembly Flow Chart

The following chart is the procedure for disassembling the casing and inside parts for internal inspection when carrying out the servicing.

To assemble the unit, reverse the steps shown in the chart below.



9.1.2. P.C.B. Positions



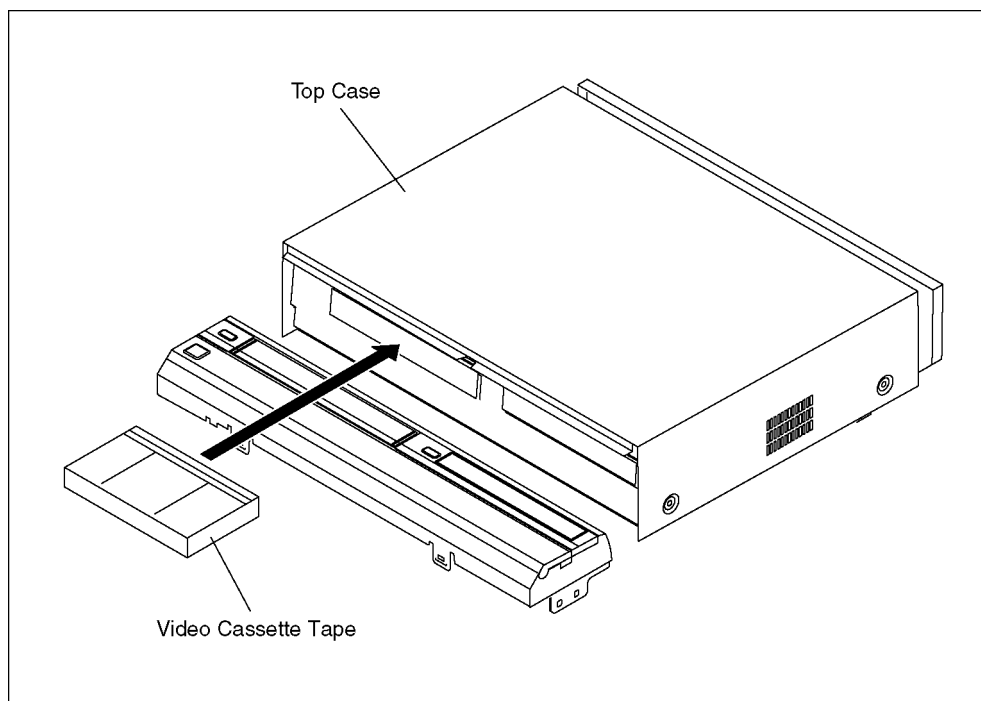
9.1.3. Caution with inserting cassette tape when disassembling the unit

Note1:

For description of the disassembling procedure, see the section 9.1.4.

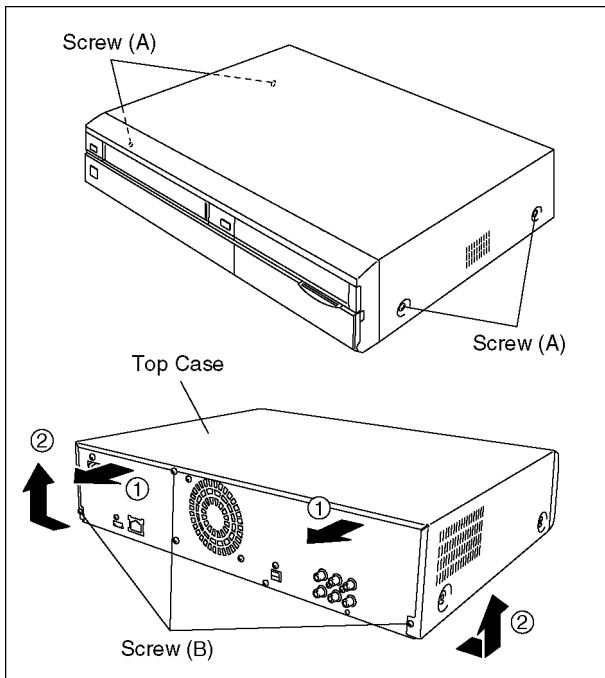
Note2:

Video Cassette might not enter when a strong lighting is applied to VTR Mechanism when Video Cassette is inserted. Please weaken the lighting or cover with the top panel etc.



9.1.4. Top Case

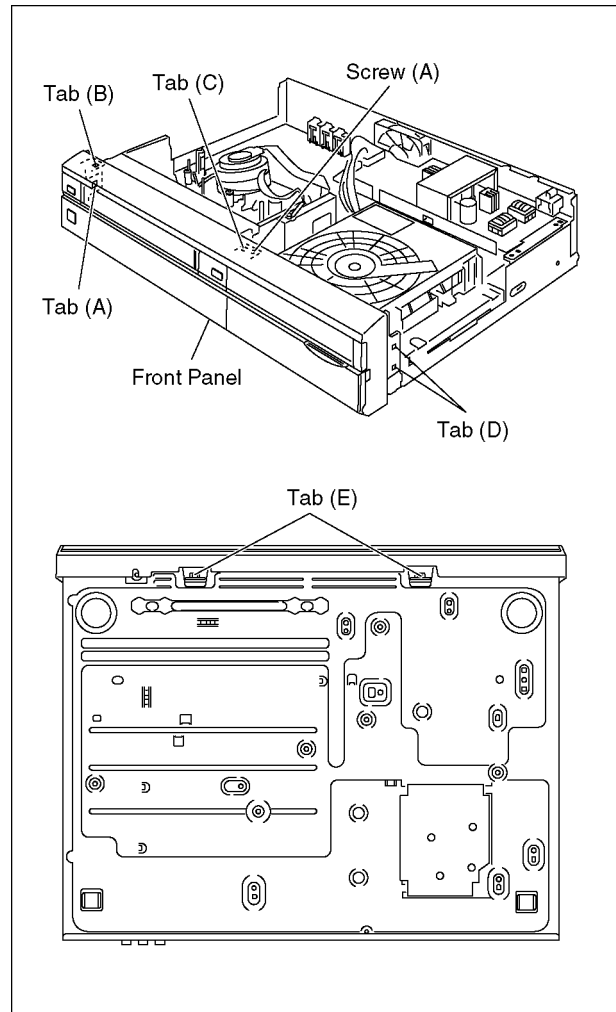
1. Remove the 4 Screws (A) and 3 Screws (B).
2. Slide Top Case rearward and open the both ends at rear side of the Top Case a little and lift the Top Case in the direction of the arrows.



9.1.5. Front Panel

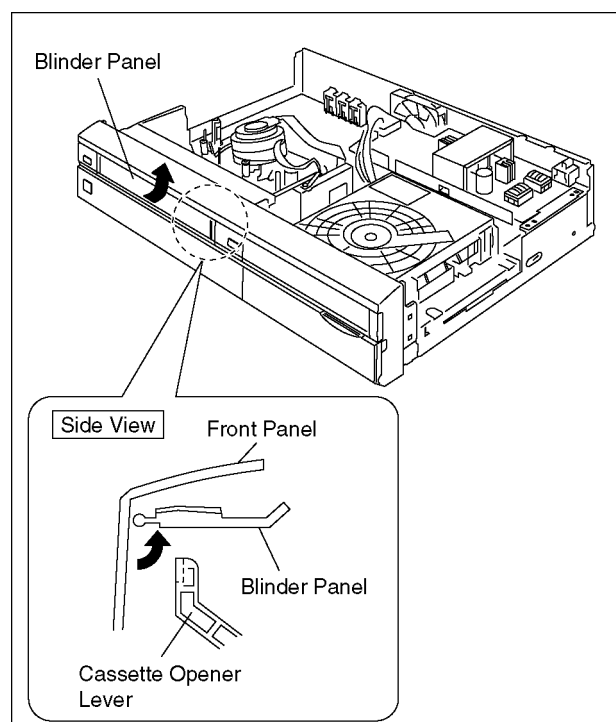
1. Remove one Screw (A).
2. Unlock Tab (A) and Tab (B) simultaneously.
3. Unlock Tab (C) and Tab (D) simultaneously.

4. Unlock 2 Tabs (E) respectively, and pull out Front Panel with connector slightly.



Note:

When attaching Front Panel, in order to hook Cassette Opener Lever to Blinder Panel, push up Blinder Panel in the direction of arrow and insert a Front Panel.



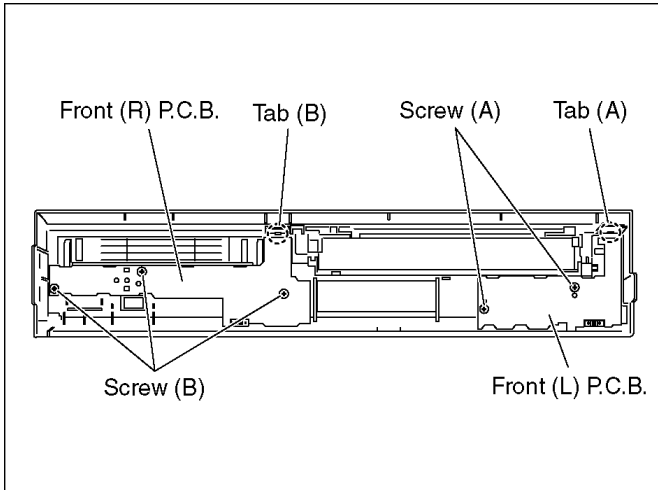
9.1.6. Front (L) P.C.B. & Front (R) P.C.B.

9.1.6.1. Front (L) P.C.B.

1. Remove 2 Screws (A) and Tab (A) to remove Front (L) P.C.B..

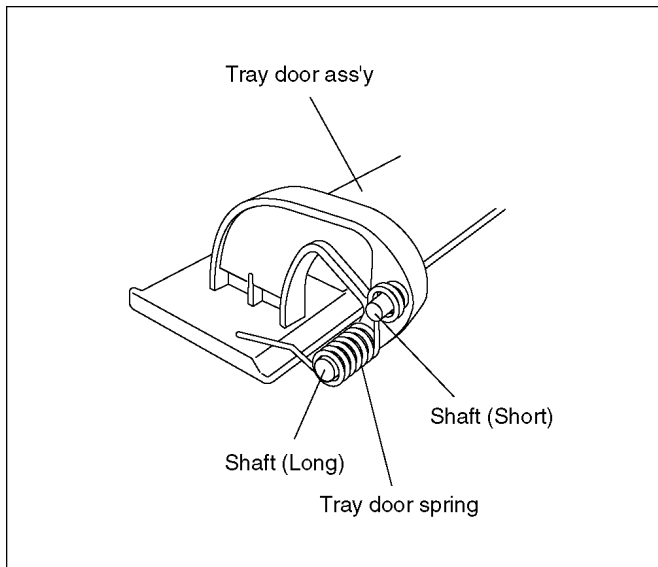
9.1.6.2. Front (R) P.C.B.

1. Remove 3 Screws (B) and Tab (B) to remove Front (R) P.C.B..



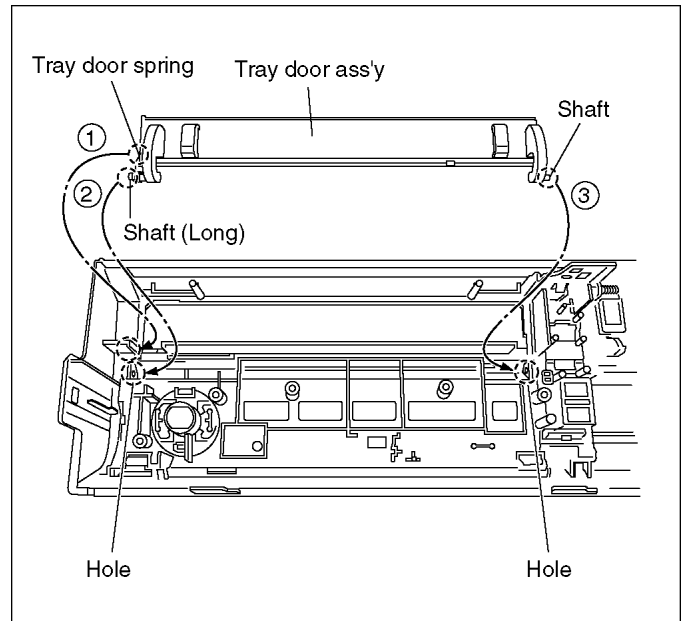
9.1.6.3. How to assemble Tray door ass'y

1. Attach Tray door spring to Tray door ass'y.

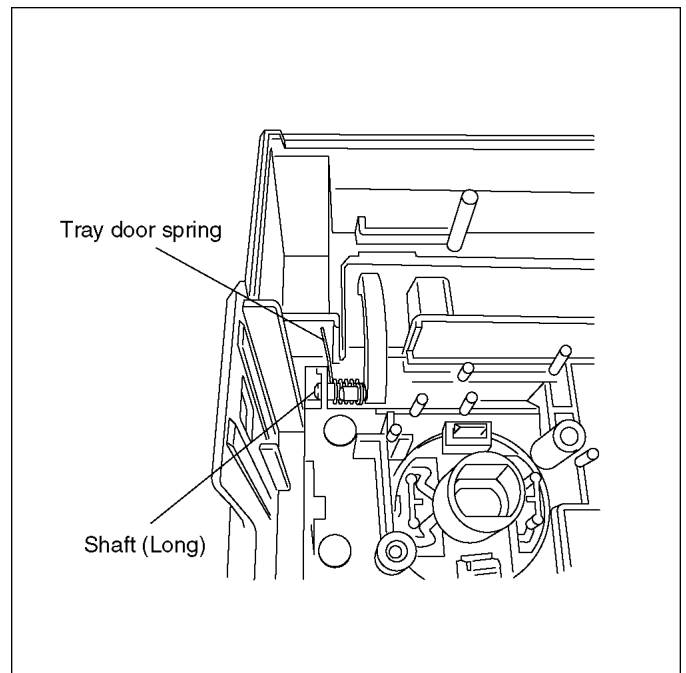


2. Attach Tray door ass'y in order from ① to ③.

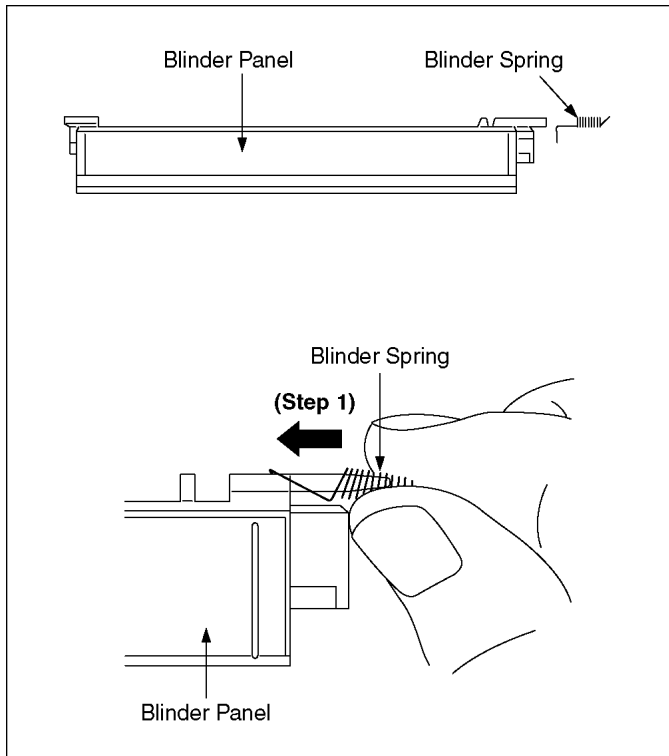
- ①: Put the Tray door spring on the Front Panel.
- ②: Insert the shaft in the hole.
- ③: Insert the shaft in the hole.



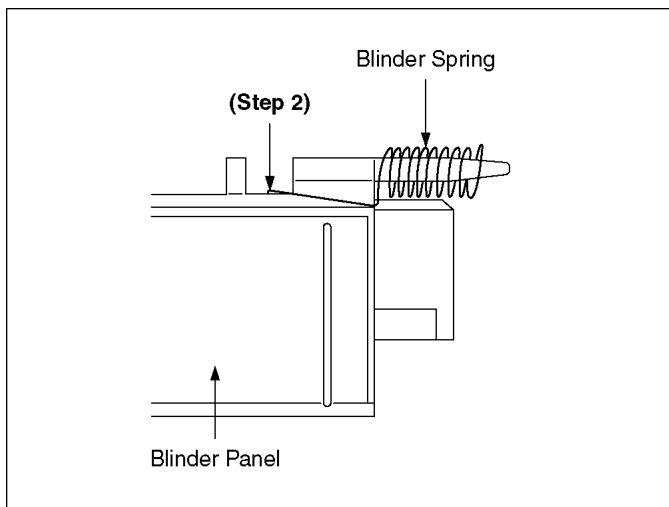
3. Confirm the Tray door spring is attached as following.



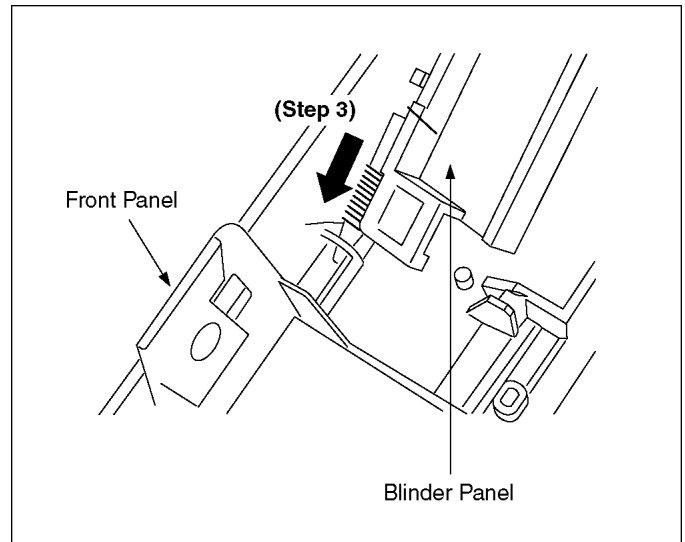
9.1.6.4. Assembly of Blinder Panel and Blinder Spring



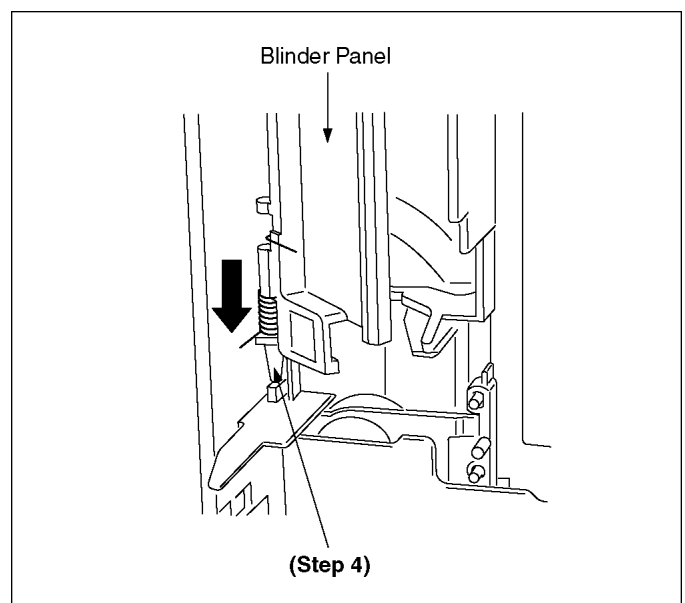
Step 1 : Insert Blinder Spring into shaft of Blinder Panel.



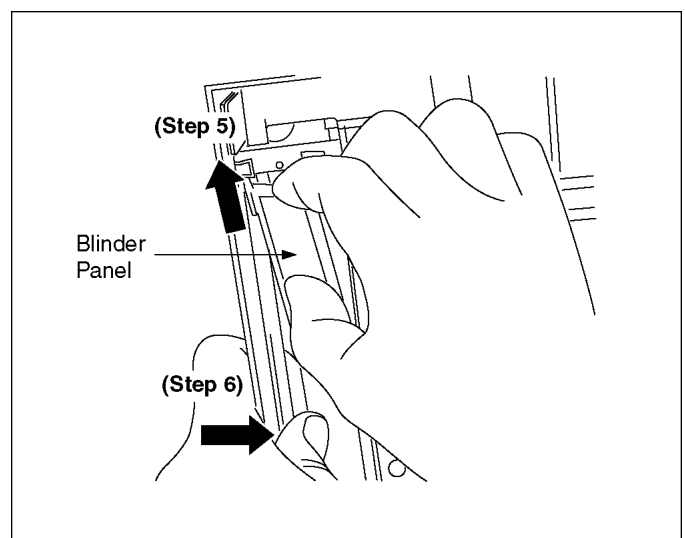
Step 2 : Hook Blinder Spring to bottom of the shaft.



Step 3 : Slide Blinder Panel into shaft hole of Front Panel.



Step 4 : Slide down Blinder Panel to touch the shaft on top of the rib.

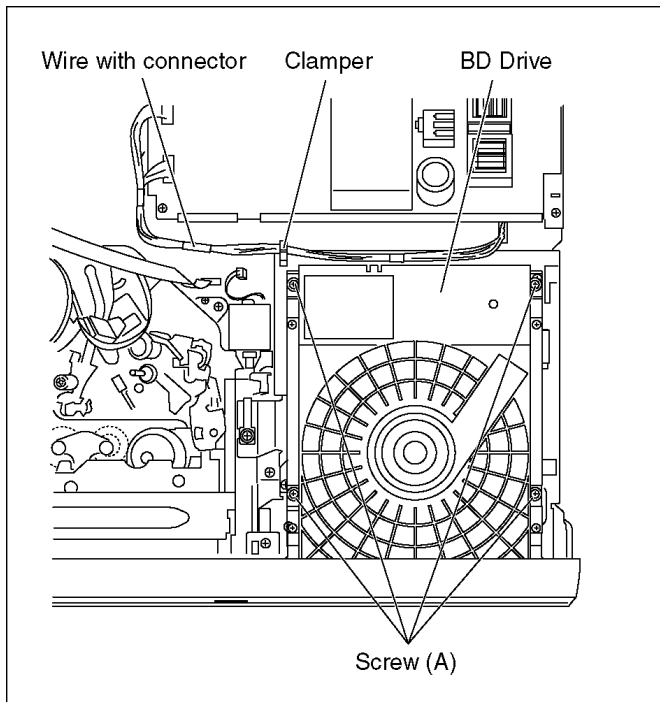


Step 5 : Push shaft into shaft hole.

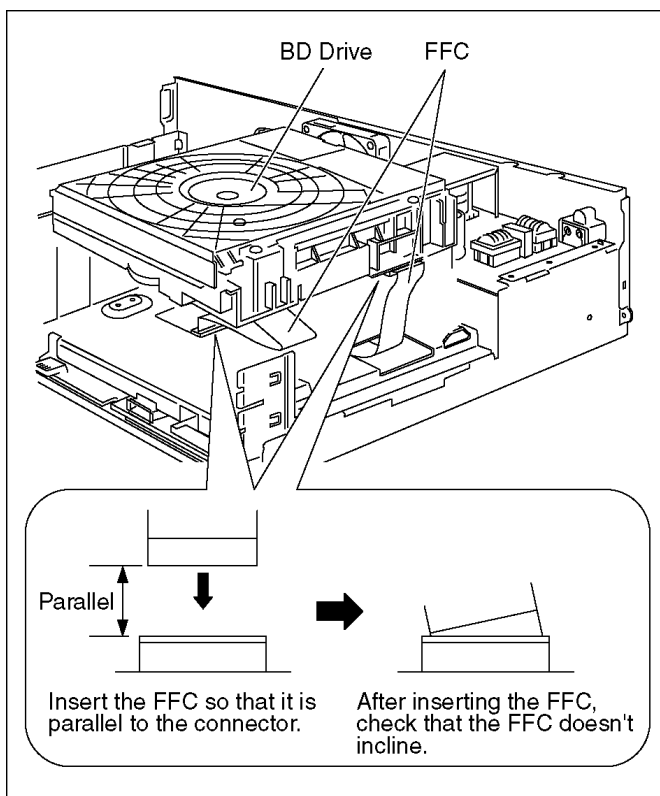
Step 6 : Press centre of Blinder Panel and bow down.

9.1.7. BD Drive

1. Remove 4 Screws (A).
2. Remove Wire with connector from Clamper.

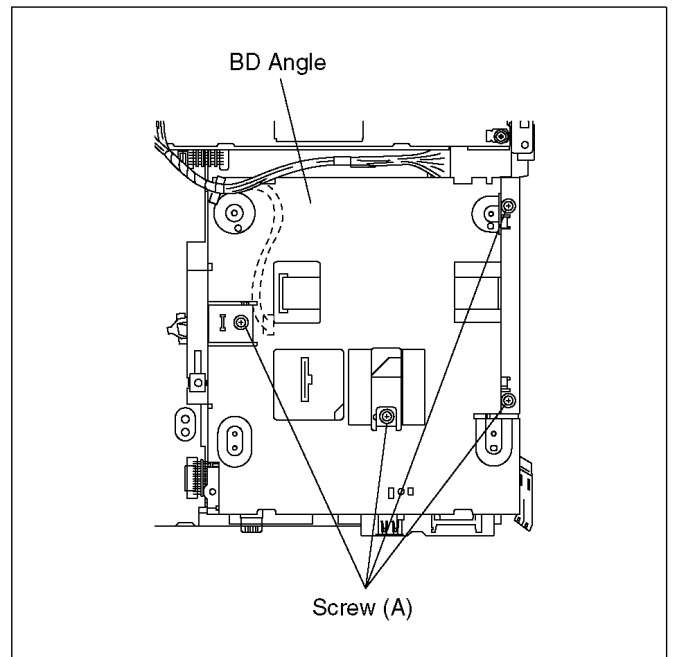


3. Disconnect 2 FFCs, remove BD Drive.



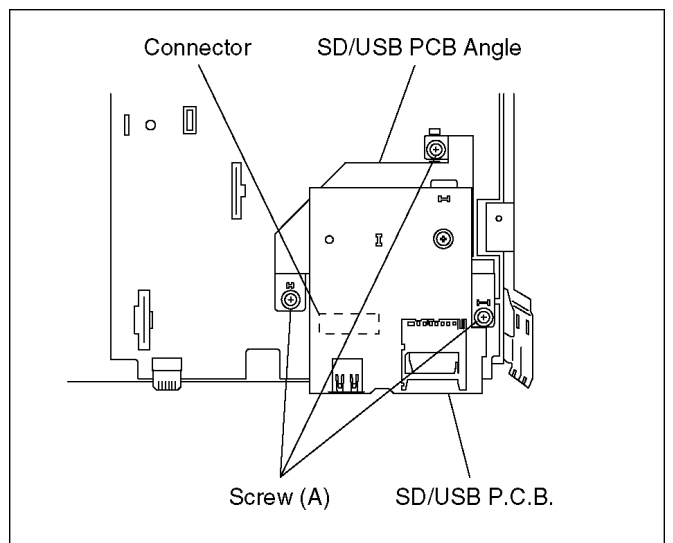
9.1.8. SD/USB P.C.B. With SD/USB PCB Angle

1. Remove 4 Screws (A) to remove BD Angle.



2. Remove 3 Screws (B).

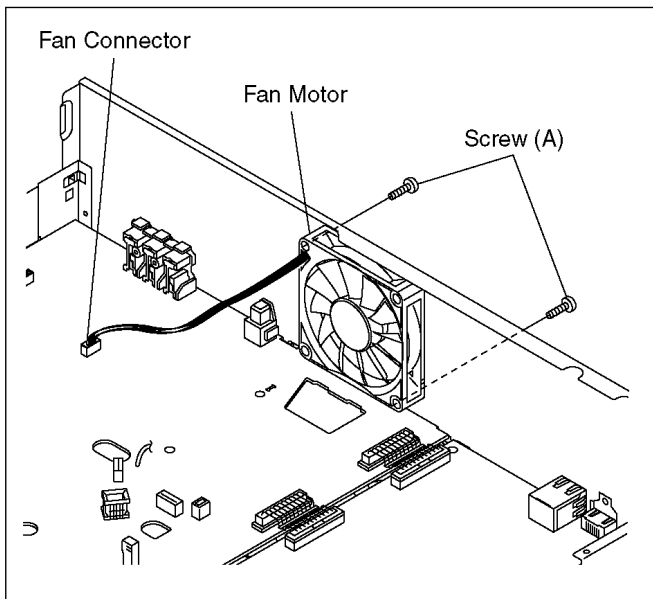
And lift up SD/USB P.C.B. with SD/USB PCB Angle slightly so to disconnect connector to remove SD/USB P.C.B. with SD/USB PCB Angle.



9.1.9. Rear Panel, Fan Motor

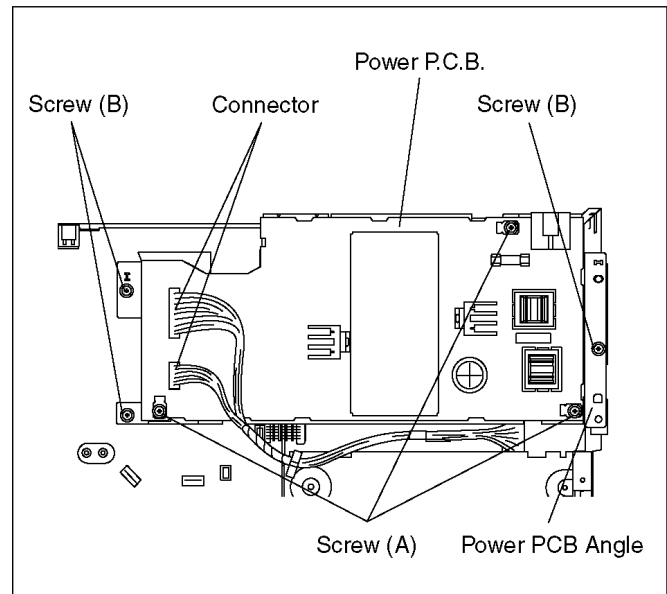
9.1.9.1. Only Fan Motor

1. Disconnect Fan Connector.
2. Remove 2 Screws (A) to remove Fan Motor.



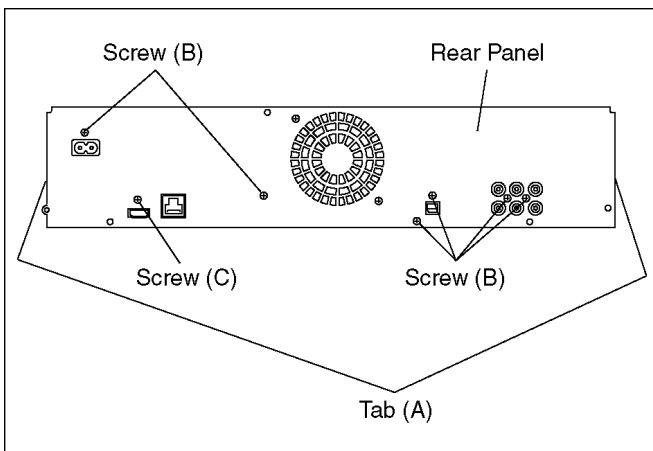
9.1.10. Power P.C.B. and Power PCB Angle

1. Disconnect 2 Connectors.
2. Remove 3 Screws (A) to remove Power P.C.B..
3. Remove 3 Screws (B) to remove Power PCB Angle.



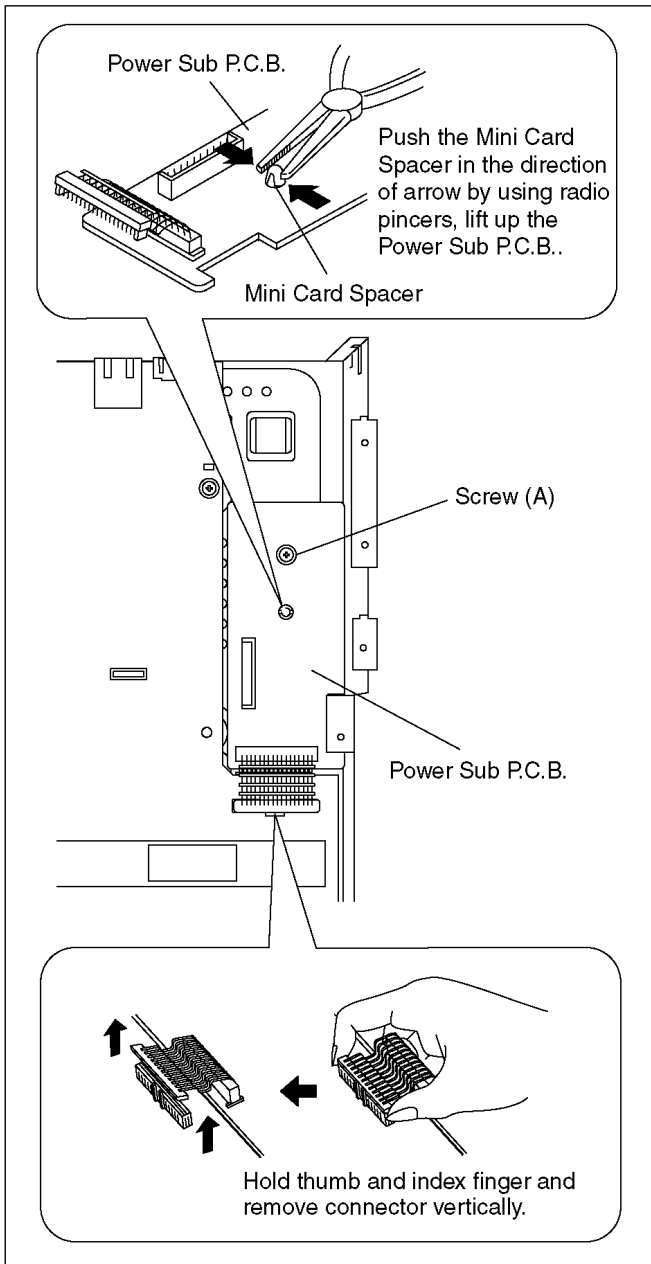
9.1.9.2. Rear Panel with Fan Motor

1. Disconnect Fan Connector.
2. Remove 6 Screws (B) and one Screw (C).
3. Unlock 2 Locking Tabs (A) to remove Rear Panel with Fan Motor.



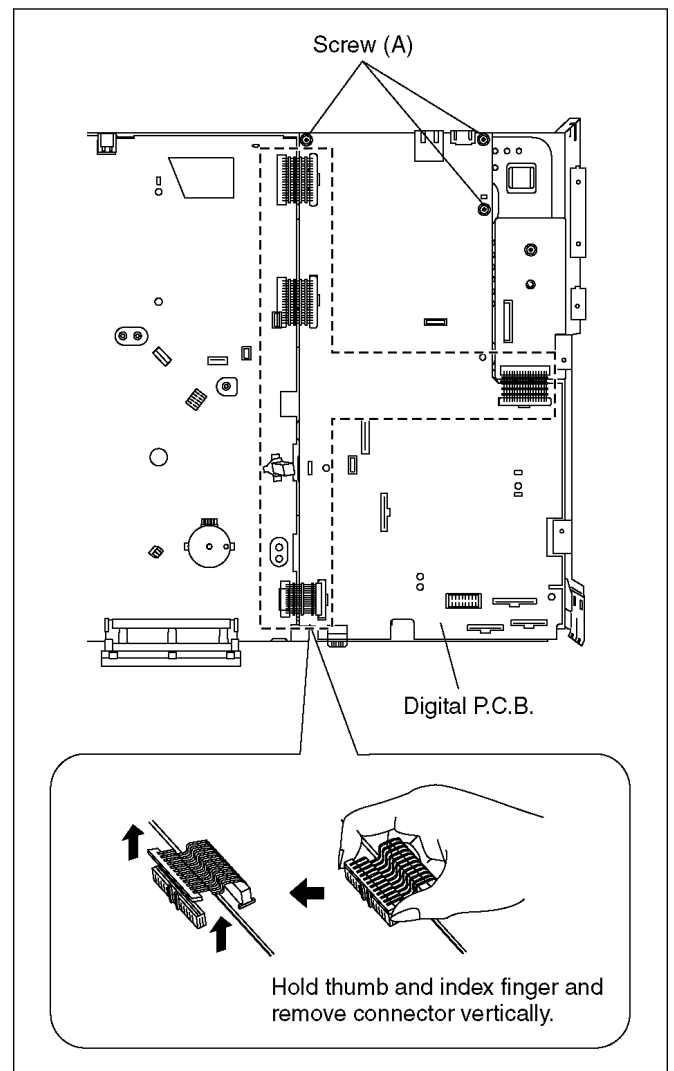
9.1.11. Power Sub P.C.B.

1. Disconnect one Connector.
2. Remove one Screw (A).
3. Push the Mini Card spacer in the direction of arrows lift up Power Sub P.C.B. to remove Power Sub P.C.B..



9.1.12. Digital P.C.B.

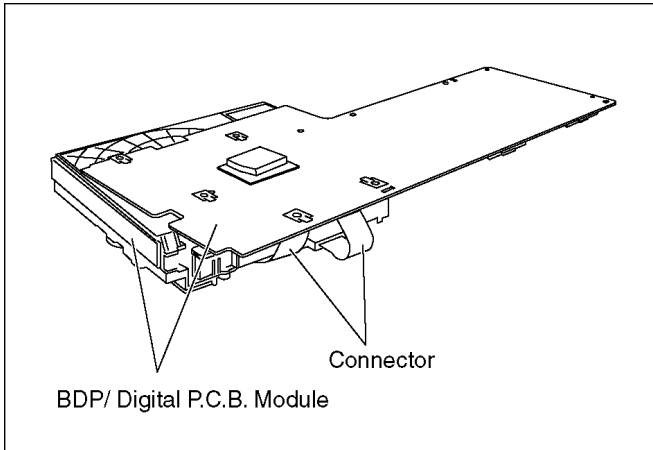
1. Disconnect 4 connectors.
2. Remove 3 Screws (A) to remove Digital P.C.B..



Caution:

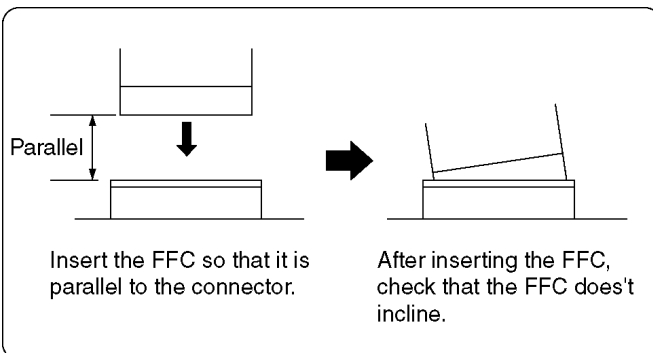
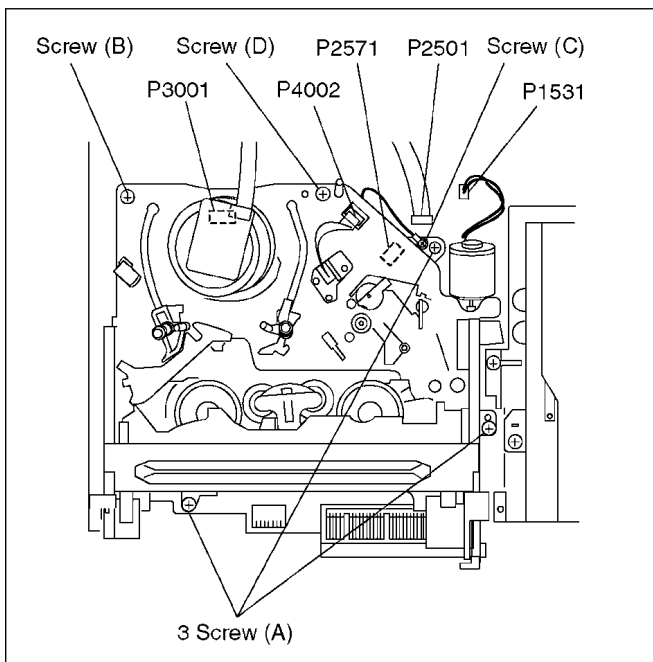
Pairing of BD Drive and Digital P.C.B. as "BDP/ Digital P.C.B. Module" have to be replaced together. If the either BD drive or Digital P.C.B. is changed, BD Drive unit has to be re-adjusted. Because the adjustment data for BD Drive Unit is stored in Digital P.C.B..

3. Connect 2 connectors.
4. Put Digital P.C.B. on BD Drive.



9.1.13. VTR Mechanism Unit

1. Disconnect 3 Connectors (P1531, P2501 and P4002).
2. Remove 3 Screws (A), Screw (B), Screw (C) and Screw (D).
3. Lift up VTR Mechanism Unit perpendicularly so to disconnect Connectors (P2571 and P3001).



Note:

Pay attention to stiff connections of P2571 and P3001, when removing VTR Mechanism Unit.

9.1.13.1. Caution for attaching VTR Mechanism Unit

1. Because Position SW should be set to "Eject Position", refer to fig.(A) and set the position switch so that the boss and arrow mark come on a straight line.
2. Attach VTR Mechanism Unit so that Boss of Position SW is put into long hole of Main Cam Gear, refer to Fig. (B).

Fig. (B)

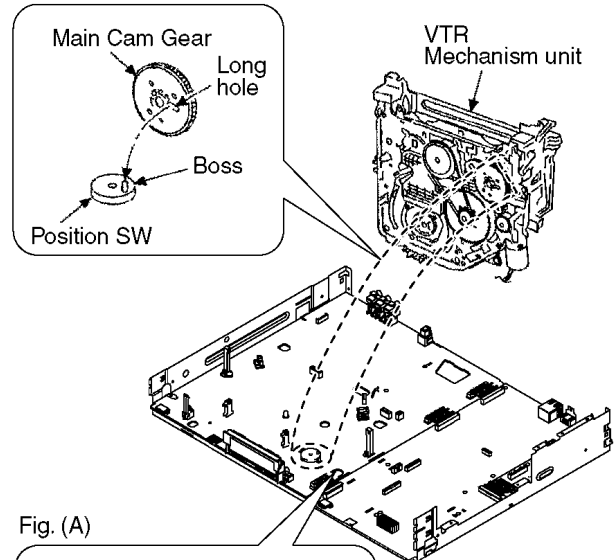
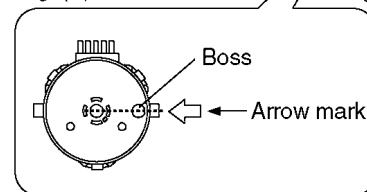
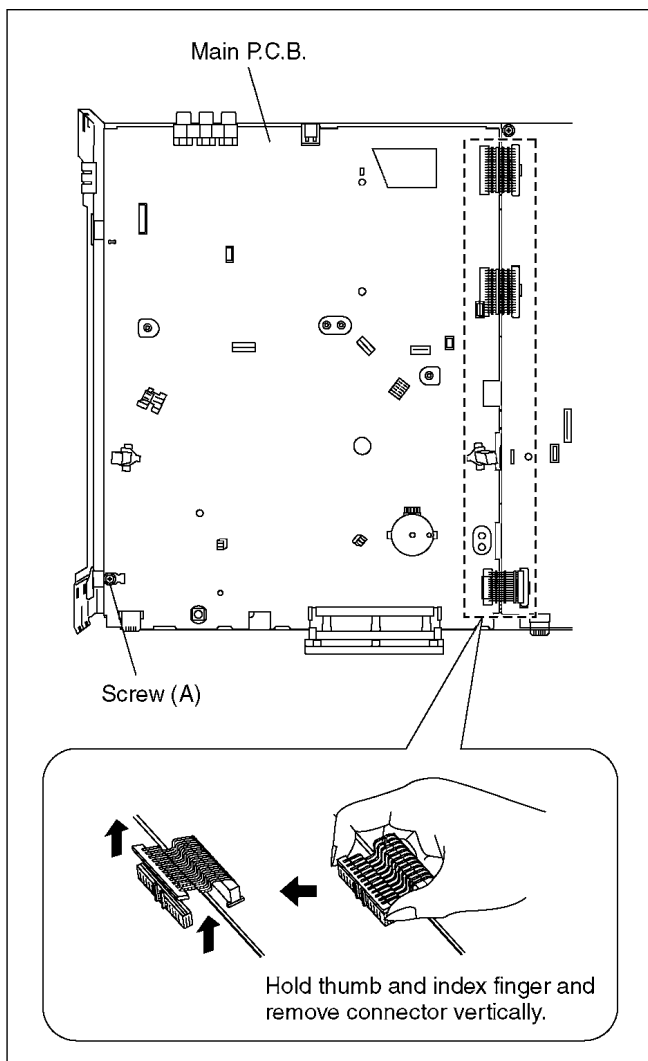


Fig. (A)



9.1.14. Main P.C.B.

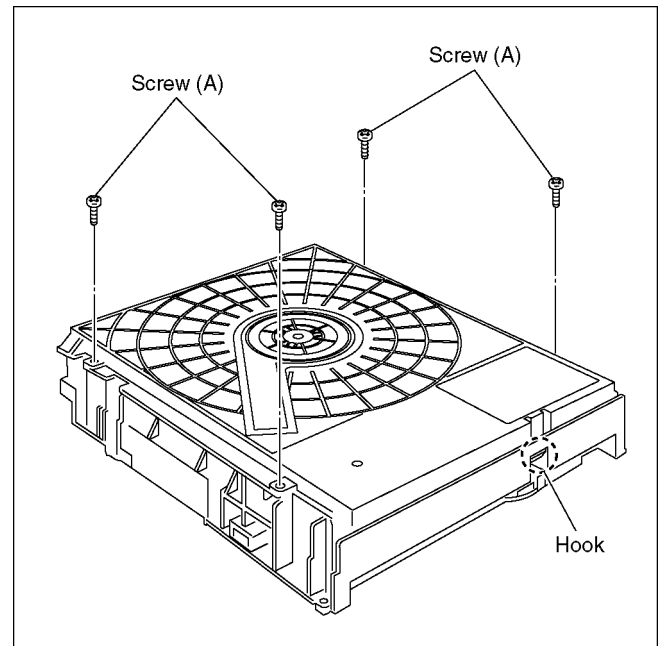
1. Disconnect 3 Connectors.
2. Remove one Screw (A) to remove Main P.C.B.



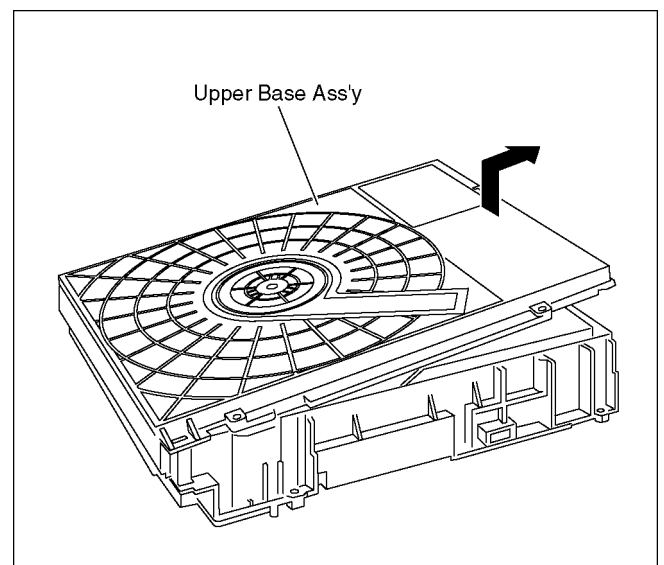
9.2. BD Drive

9.2.1. Upper Base Ass'y

1. Remove the 4 Screws (A), and push the Hook in.

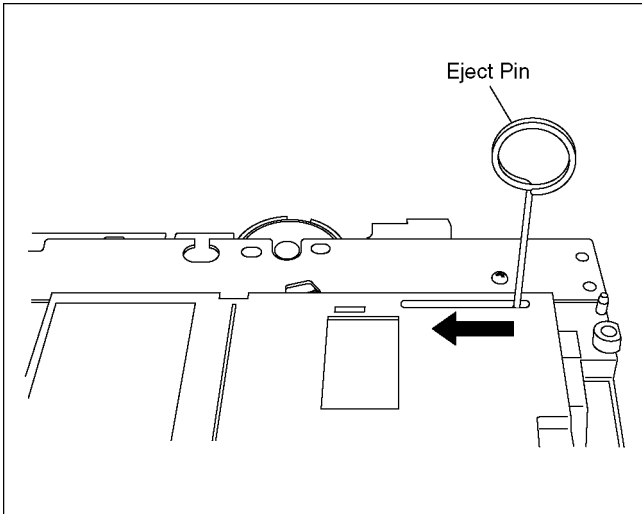


2. Lift up the Upper Base Ass'y, and pull it out to the direction of arrow.

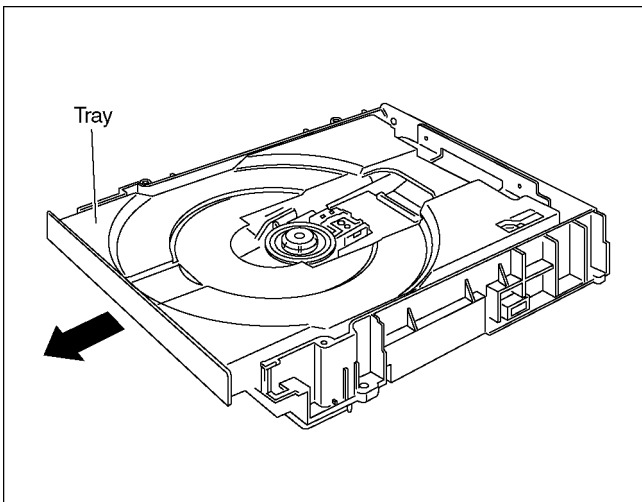


9.2.2. Tray

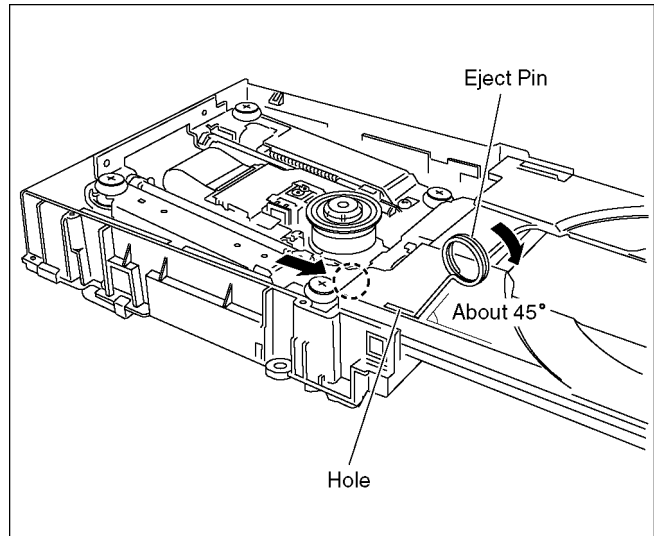
1. Perform the step "9.2.1. Upper Base Ass'y".
2. Insert the Eject Pin into the hole of the bottom side, and slide it to the direction of arrow until it can be.



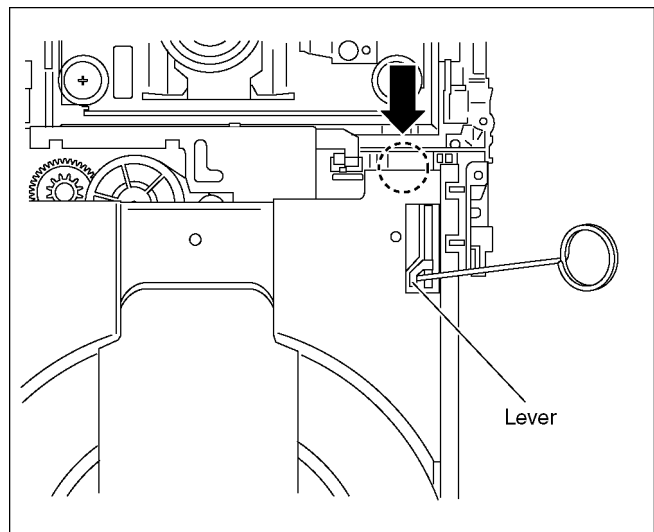
3. Pull the Tray to the direction of arrow until it can be.



4. Insert the Eject Pin into the hole of the Tray at 45 degrees, and lean it to the direction of arrow with pushing the dotted point of the tray forward. Then the one side of the tray is come off from the Drive.

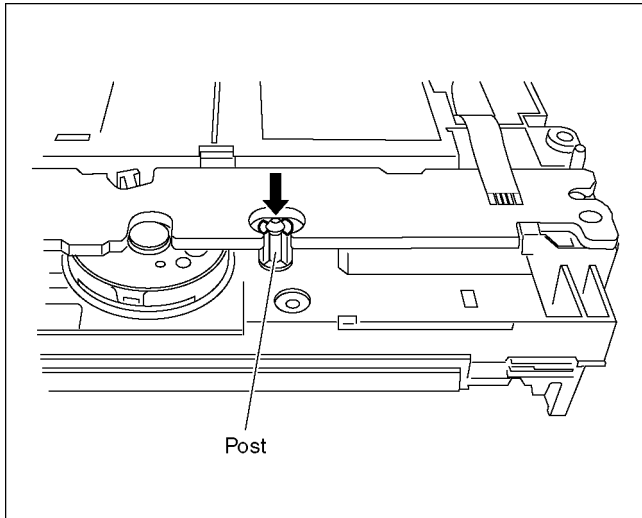


5. Insert the Eject Pin into the Tray as below figure, lift up the lever using the Eject Pin while pushing the dotted point of the Tray. And remove the Tray.

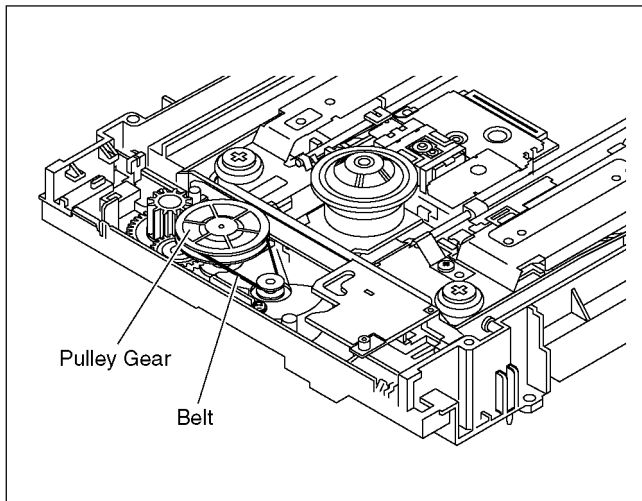


9.2.3. Pulley Gear, Belt

1. Perform the step "9.2.2. Tray".
2. Push the Post to the direction of arrow by using the slotted screwdriver.

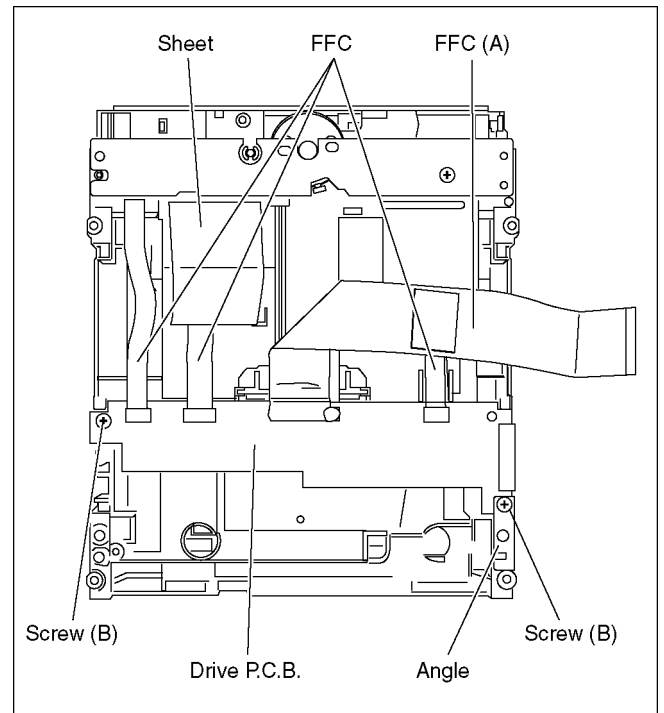


3. Remove the Pulley Gear and Belt.



9.2.4. Slide Cam

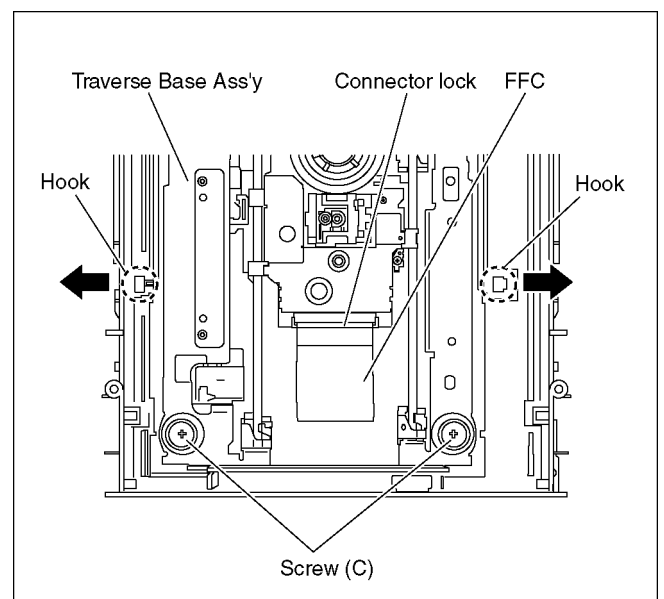
1. Perform the step "9.2.3. Pulley Gear, Belt".
2. Disconnect the 3 FFCs.
3. Remove the 2 Screws (B) and the Angle.
4. Peel off Coppery Sheet from FFC (A) and remove the Drive P.C.B.



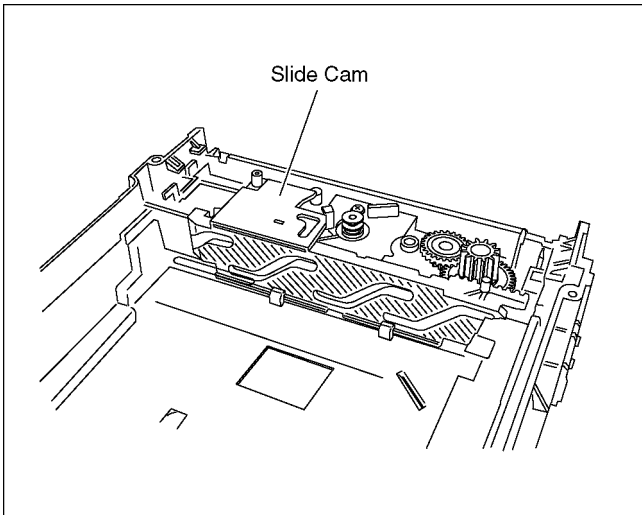
Caution:

Though the Drive P.C.B. is not supplied as replacement parts, it must be removed for after disassembling.

5. Open the connector lock, and disconnect the FFC.
6. Remove the 2 Screws (C), and remove the Traverse Base Ass'y with spreading the 2 hooks to the direction of arrows.

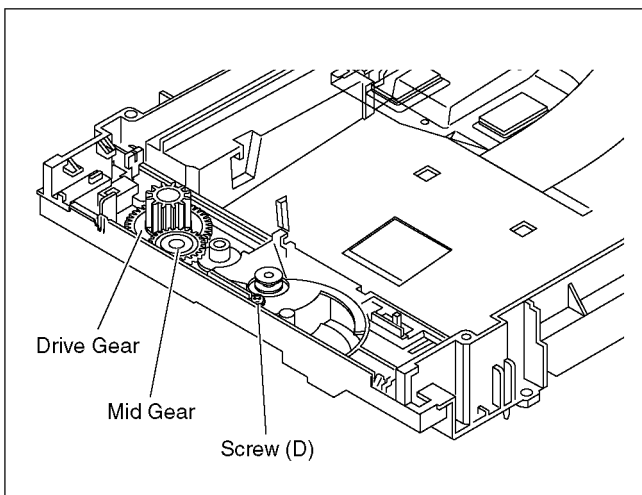


7. Remove the Slide Cam.

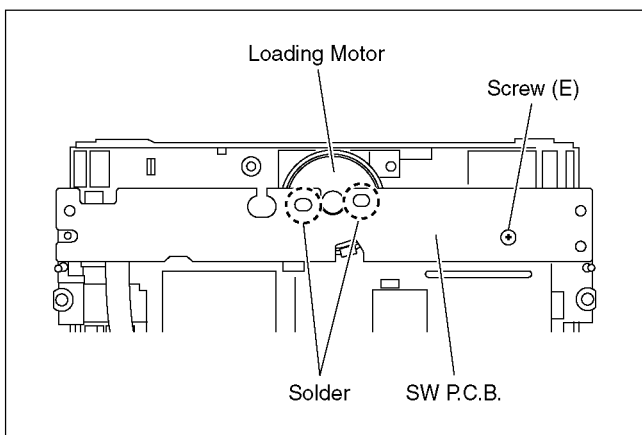


9.2.5. Mid Gear, Drive Gear and Loading Motor

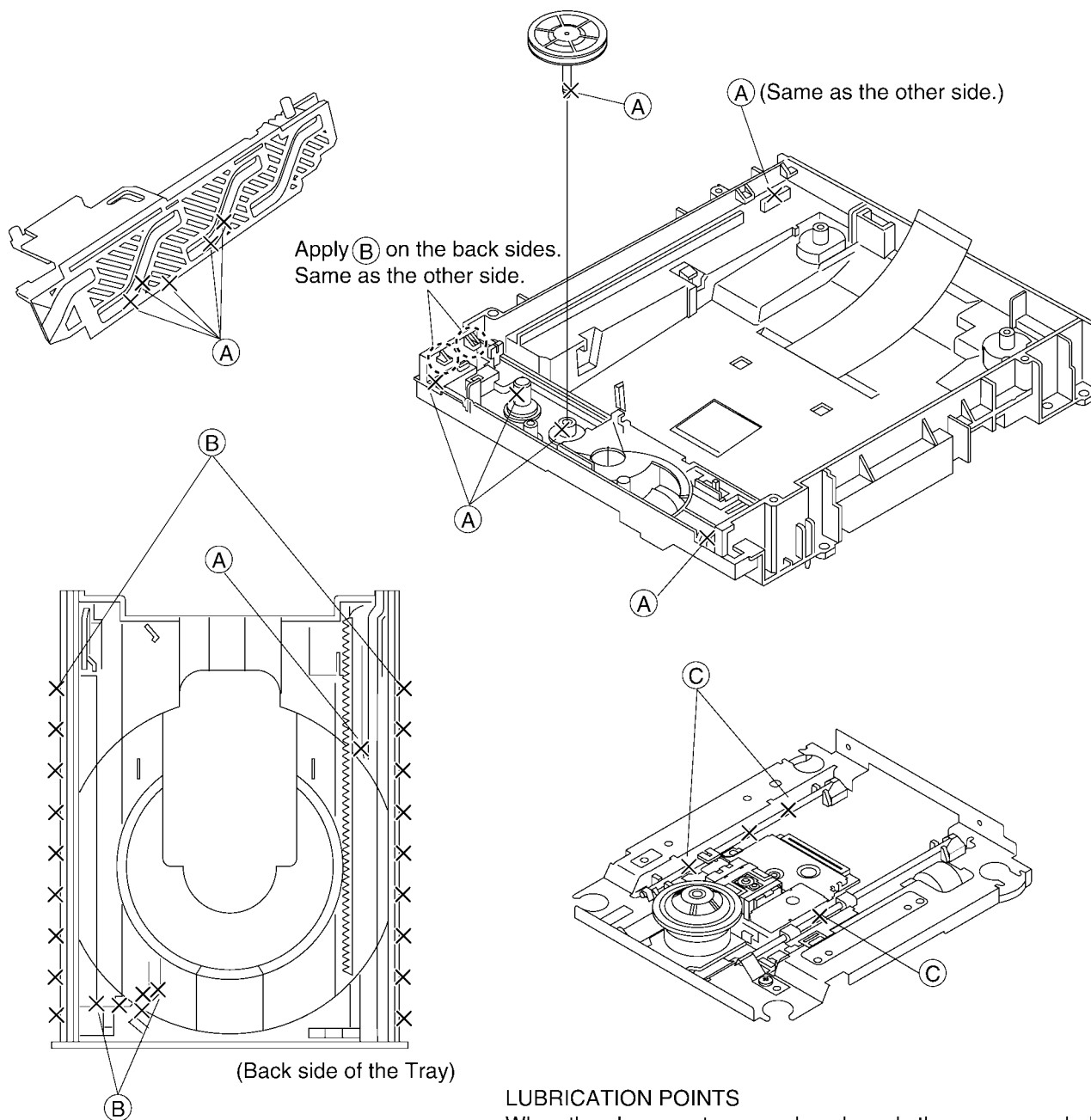
1. Perform the step "9.2.4. Slide Cam".
2. Remove the Mid Gear and Drive Gear.
3. Remove the Screw (D) to remove the Loading Motor.



4. Remove the Screw (E), and remove the SW P.C.B. with the Loading Motor.
Remove the 2 soldering points, and remove the Loading Motor.



9.2.6. Grease



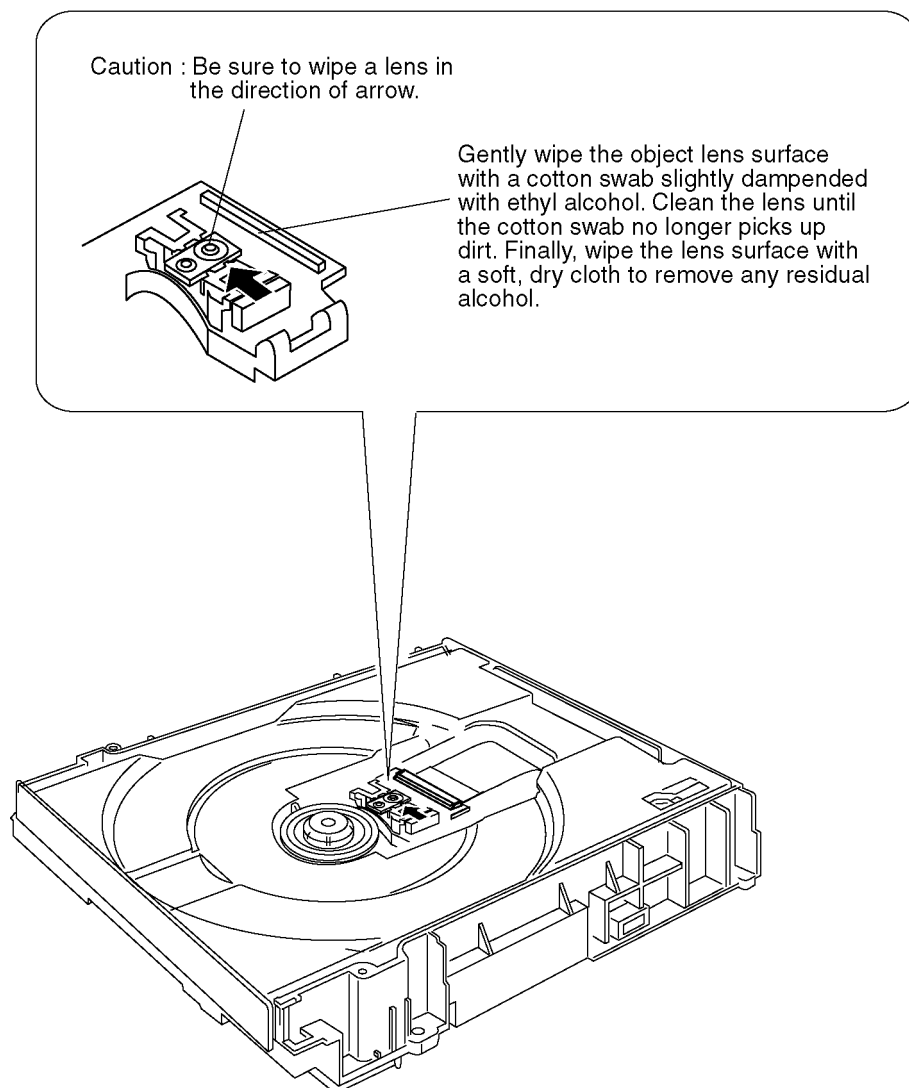
LUBRICATION POINTS

When the above parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of lubricant	Part No.
(A)	Grease	RFKZ0484
(B)	Hanarl	RFKZ0441
(C)	Grease	RFKXPG641

9.2.7. How to Clean the Lens of Optical Pick-UP

Follow the "9.2.1. Upper Base Ass'y



10 Measurements and Adjustments

10.1. Service Positions

Note:

For description of the disassembling procedure, see the section 9.

10.1.1. Checking and Repairing of Power P.C.B.

1. Top Case

Remove 4 Screws (A) on side.

Remove 3 Screws (B) on rear.

Remove Top Case.

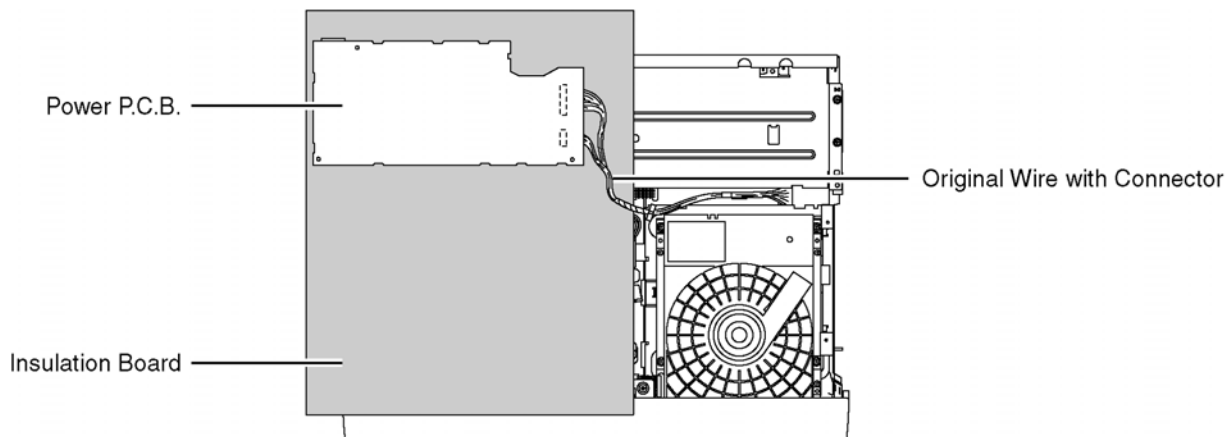
2. Power P.C.B.

Disconnect the Wire with Connector (12 pin) and the Wire with Connector (4 pin) between Power P.C.B. and Digital P.C.B. and Power Sub P.C.B.

Remove 1 Screw (A) fixing AC Inlet.

Remove 3 Screws (B) fixing Power P.C.B., and remove Power P.C.B.

Connecting the original Wire with Connector (4 pin) between Power P.C.B. and Digital P.C.B.
Connecting the original Wire with Connector (12 pin) between Power P.C.B. and Power Sub P.C.B.
Put Power P.C.B. on Insulation Board so that its foil side faces top.



10.1.2. Checking and Repairing of Main P.C.B.

1. Top Case

Remove 4 Screws (A) on side.

Remove 3 Screws (B) on rear.

Remove Top Case.

2. Front Panel

Remove 1 Screw (A) on center.

Unlock 4 Locking Tabs (A),(B),(C),(D).

Unlock 2 Locking Tabs (E) on bottom, and remove Front Panel.

3. Power P.C.B. with Power PCB Angle

Disconnect the Wire with Connector (12 pin) and the Wire with Connector (4 pin) between Power P.C.B. and Digital P.C.B. and Power Sub P.C.B.

Remove 1 Screw (A) fixing AC Inlet.

Remove 3 Screws (B) and 1 Screw (C) fixing Power P.C.B. with Power PCB Angle, and remove Power P.C.B. with Power PCB Angle.

4. BD Drive

Remove 4 Screws (A) fixing BD Drive.

Disconnect 2 FFCs, and remove BD Drive.

5. SD/USB P.C.B. with SD/USB PCB Angle

Remove 4 Screws (A) fixing BD Angle, and remove BD Angle.

Disconnect the 2 Wire with Connectors.

Remove 3 Screws (B) fixing SD/USB P.C.B. with SD/USB PCB Angle, and remove SD/USB P.C.B. with SD/USB PCB Angle.

6. Rear Panel

Remove 5 Screws (One is for HDMI) fixing Rear Panel.

Disconnect Fan Connector, and remove Rear Panel.

7. VTR Mechanism Unit

Disconnect 3 Connectors.

Remove 3 Screws (A), Screw (B), Screw (C), Screw (D).

Left up VTR Mech. Unit to remove it.

8. Main P.C.B.

Disconnect 3 Connectors (A) between Main P.C.B. and Digital P.C.B.

Remove 1 Screw (A) fixing Main P.C.B., and remove Main P.C.B.

Left up VTR Mech. Unit to remove it.

Attach VTR Mechanism Unit on to Main P.C.B.

Tighten Screw (C) with Earth Wire.

Tighten Screw (D) beside Screw (C).

Insert 1 Connector and 2 FFCs.

Hold Main P.C.B. with VTR Mechanism, make it upside-down, and put it,

Connecting Extension Cable (RFKZ0216 x 2, RFKZ0327) with Digital P.C.B.

Assemble SD/USB P.C.B. with SD/USB PCB Angle, BD Drive and Power P.C.B. with Power PCB Angle again.

Connect Extension Cables,

*between Main P.C.B. and Digital P.C.B. with (RFKZ0216 X 2),

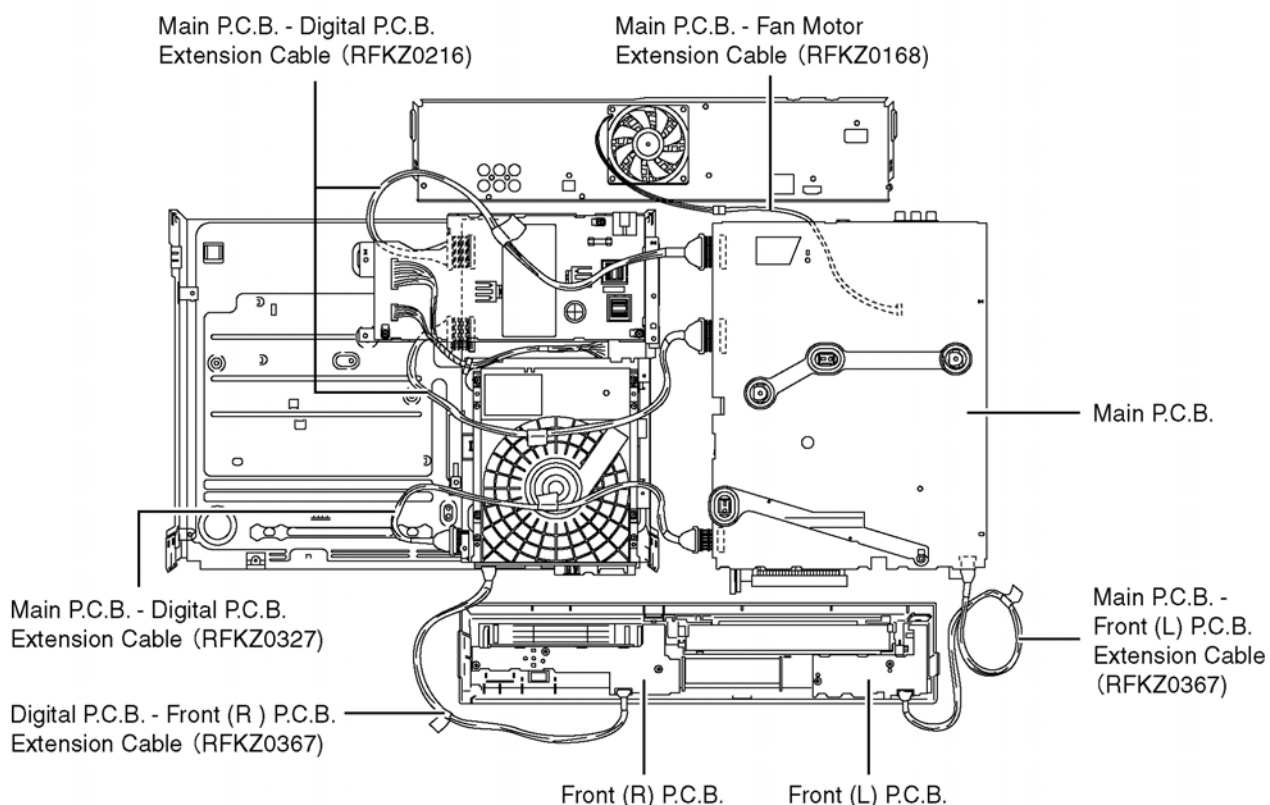
*between Digital P.C.B. and Main P.C.B. with (RFKZ0327),

*between Digital P.C.B. and Front (R) P.C.B. with (RFKZ0367),

*between Main P.C.B. and Front (L) P.C.B. with (RFKZ0367),

*between Main P.C.B. and Fan Motor with (RFKZ0168).

Caution : Red wire in the extension cable should be connected to (1) pin.



10.1.3. Checking and Repairing of BDP/Digital P.C.B. Module

1. Top Case

- Remove 4 Screws (A) on side.
- Remove 3 Screws (B) on rear.
- Remove Top Case.

2. Front Panel

- Remove 1 Screw (A) on center.
- Unlock 4 Locking Tabs (A),(B),(C),(D).
- Unlock 2 Locking Tabs (E) on bottom, and remove Front Panel.

3. Power P.C.B. with Power PCB Angle

- Disconnect the Wire with Connector (12 pin) and the Wire with Connector (4 pin) between Power P.C.B. and Digital P.C.B. and Power Sub P.C.B.
- Remove 1 Screw (A) fixing AC Inlet.
- Remove 3 Screws (B) and 1 Screw (C) fixing Power P.C.B. with Power PCB Angle, and remove Power P.C.B. with Power PCB Angle.

4. BD Drive

- Remove 4 Screws (A) fixing BD Drive.
- Disconnect 2 FFCs, and remove BD Drive.

5. SD/USB P.C.B. with SD/USB PCB Angle

- Remove 4 Screws (A) fixing BD Angle, and remove BD Angle.
- Disconnect 2 Wire with Connectors.
- Remove 3 Screws (B) fixing SD/USB P.C.B. with SD/USB PCB Angle, and remove SD/USB P.C.B. with SD/USB PCB Angle.

6. Rear Panel

- Remove 5 Screws (One is for HDMI) fixing Rear Panel.
- Disconnect Fan Connector, and remove Rear Panel.

7. Digital P.C.B.

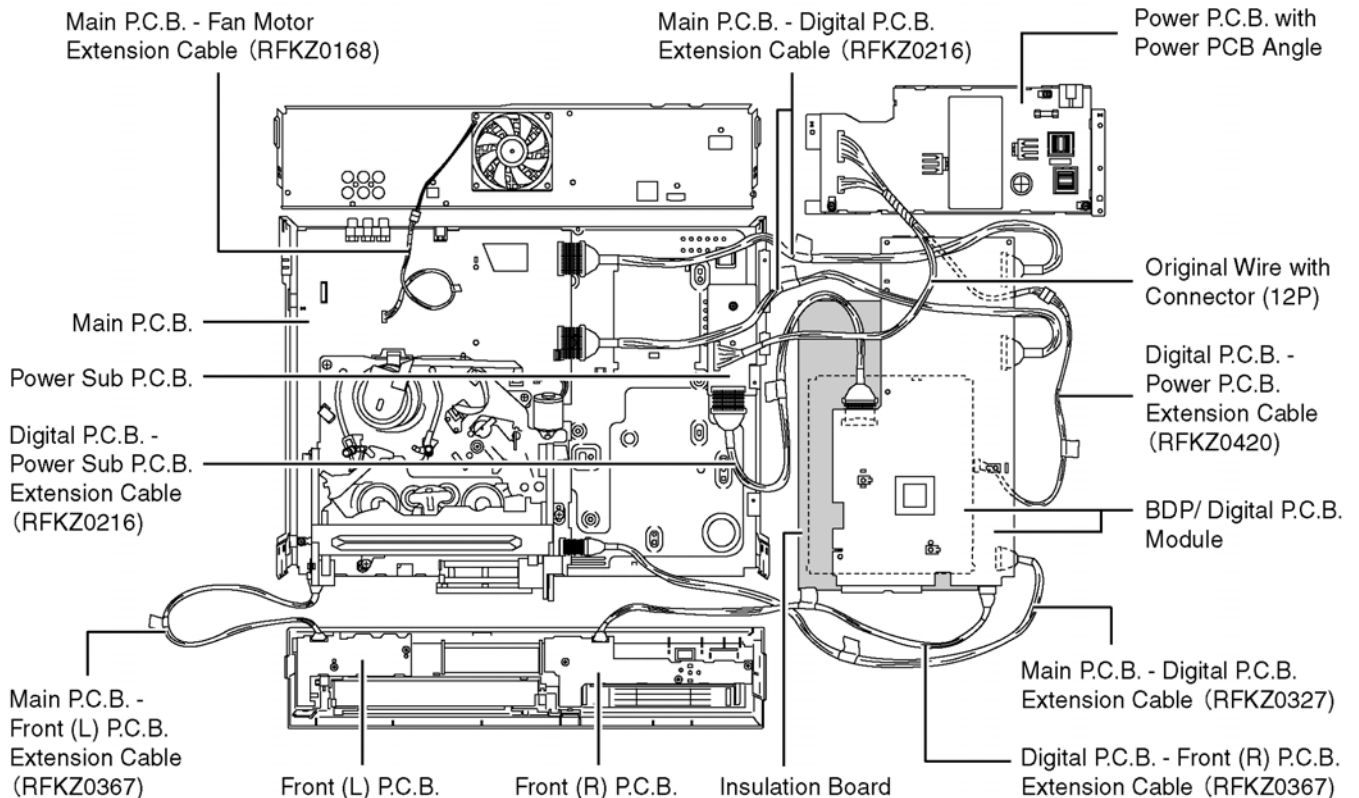
- Disconnect 4 Connectors.
- Remove 3 Screws (A) fixing Digital P.C.B., and remove Digital P.C.B.

Connecting the original Wire with Connector (12 pin) between Power P.C.B. and Power Sub P.C.B.
Assemble SD/USB P.C.B. with SD/USB PCB Angle, BD Drive and Power P.C.B. with Power PCB Angle again.
Put Insulation Board on BD Drive, and put the Digital P.C.B. on Insulation Board.

Connect Extension Cables,

- *between Digital P.C.B. and Power Sub P.C.B. with (RFKZ0216),
- *between Main P.C.B. and Digital P.C.B. with (RFKZ0216 X 2),
- *between Digital P.C.B. and Power P.C.B. with (RFKZ0420),
- *between Digital P.C.B. and Main P.C.B. with (RFKZ0327),
- *between Digital P.C.B. and Front (R) P.C.B. with (RFKZ0367),
- *between Main P.C.B. and Front (L) P.C.B. with (RFKZ0367),
- *between Main P.C.B. and Fan Motor with (RFKZ0168).

Caution : Red wire in the extension cable should be connected to (1) pin.



10.1.4. Checking and Repairing of Power Sub P.C.B.

1. Top Case

Remove 4 Screws (A) on side.

Remove 3 Screws (B) on rear.

Remove Top Case.

2. Front Panel

Remove 1 Screw (A) on center.

Unlock 4 Locking Tabs (A),(B),(C),(D).

Unlock 2 Locking Tabs (E) on bottom, and remove Front Panel.

3. Power P.C.B. with Power PCB Angle

Disconnect the Wire with Connector (12 pin) and the Wire with Connector (4 pin) between Power P.C.B. and Digital P.C.B. and Power Sub P.C.B.

Remove 1 Screw (A) fixing AC Inlet.

Remove 3 Screws (B) and 1 Screw (C) fixing Power P.C.B. with Power PCB Angle, and remove Power P.C.B. with Power PCB Angle.

4. BD Drive

Remove 4 Screws (A) fixing BD Drive.

Disconnect 2 FFCs, and remove BD Drive.

5. SD/USB P.C.B. with SD/USB PCB Angle

Remove 4 Screws (A) fixing BD Angle, and remove BD Angle.

Disconnect the 2 Wire with Connectors.

Remove 3 Screws (B) fixing SD/USB P.C.B. with SD/USB PCB Angle, and remove SD/USB P.C.B. with SD/USB PCB Angle.

6. Power Sub P.C.B.

Disconnect 1 Connector.

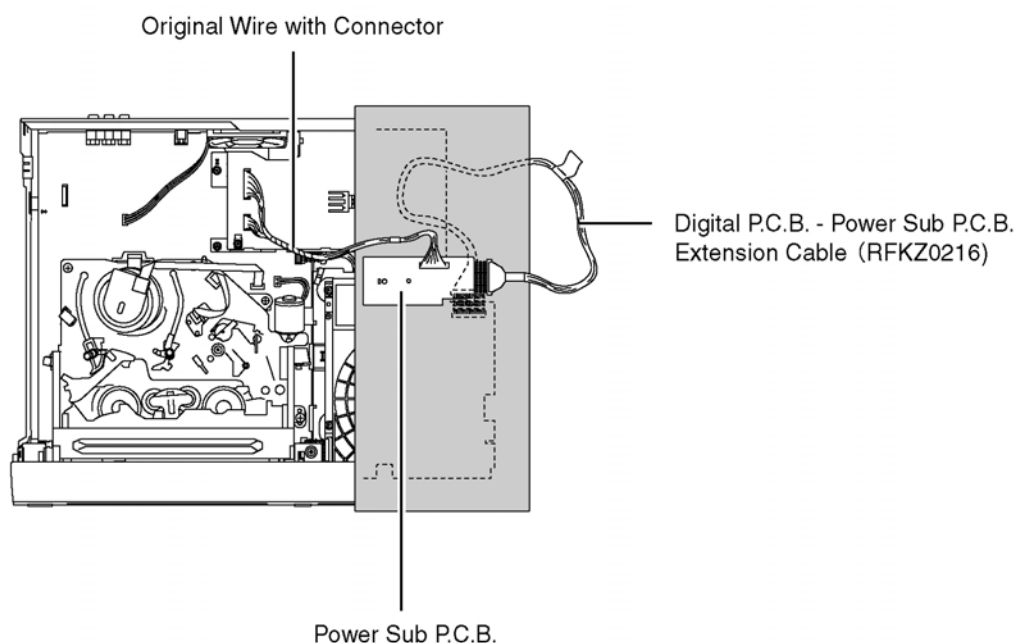
Remove 1 Screw (A) fixing Power Sub P.C.B.

Unlock the Mini Card Spacer, and remove Power Sub P.C.B.

Connecting the original Wire with Connector (12 pin) between Power P.C.B. and Power Sub P.C.B.
Assemble SD/USB P.C.B. with SD/USB PCB Angle, BD Drive and Power P.C.B. with Power PCB Angle again.
Put Power Sub P.C.B. on Insulation Board so that its foil side faces top.

Connect Extension Cables,
*between Digital P.C.B. and Power Sub P.C.B. with (RFKZ0216).

Caution : Red wire in the extension cable should be connected to (1) pin.



10.2. Caution for Replacing Parts

10.2.1. Notice after replacing Digital P.C.B.

[TM L1] is displayed, after replacing Digital P.C.B.
Once power off, and start up again.

10.2.2. Items that should be done after replacing parts

√: Necessary

—: Unnecessary

	PG Shifter Automatic Adjustment (*Note1)	X-VALUE & LINEARITY (P2 and P3 Posts) Adjustment (*Note2)	Update Firmware
DD Cylinder	√	√	—
BDP/Digital P.C.B. Module	√	—	√

***Note1:**

PG Shifter Automatic Adjustment Procedure

PROCEDURE			F.I.P. DISPLAY
Turn on the Service Mode. 1. Set Drive Select to VHS and press the [STOP] and [EJECT] key simultaneously for more than 3 seconds.			00000
Activate the Service Mode 2. (Auto tracking will be turned off) 2. Press the [STOP] and [EJECT] key simultaneously twice.			20000
Put it in PG adjustment mode. 3. Press the EJECT key for more than 3 seconds.			2 00
Set it adjustment No.1. 4. Press the CH UP key once.			2 100
Insert the alignment cassette tape (VFM8080HQFP). 5. The PG Shifter Adjustment starts automatically.			2 100
6. This display means that adjustment data was saved in memory.			For example: 055F
Result	Success	Cassette tape is ejected automatically.	2 100
	Error	NG1 in the PG Shifter Automatic Adjustment (The cylinder rotation is unstable during the automatic adjustment.)	F20
		NG2 in the PG Shifter Automatic Adjustment (The vertical sync signal is lacked while over 5 seconds on the alignment tape.)	F21
		NG3 in the PG Shifter Automatic Adjustment (The installing position of Heads to the cylinder is out of specification.	F22
		NG4 in the PG Shifter Automatic Adjustment (The servo is not locked to the cylinder for more than 10 sec.)	F23
Exit from Service Mode. 7. Press [STOP] and [EJECT] keys simultaneously in 6 times. * Then the FIP becomes normal indication.			10:00 (Normal Indication)

***Note2:**

X-VALUE & LINEARITY (P2 and P3 Posts) Adjustment Procedure

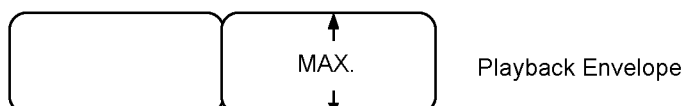
1. Set the Auto Tracking to off.
 - (1) Set Drive Select to VHS and press the [STOP] and [EJECT] keys simultaneously for more than 3 seconds to enter Service Mode.
 - (2) Press [STOP] and [EJECT] keys simultaneously twice to activate Service Mode 2, and then Auto-Tracking is turned off.

2. Perform the X-VALUE ADJUSTMENT

X-VALUE ADJUSTMENT

1. After turning off the Auto tracking, playback the alignment Tape and press [CH UP] and [CH DOWN] keys simultaneously to adjust the tracking to FIX value.
2. Adjust A/C Head Base so that the envelope becomes maximum level. (It is described on "5-2. Tape Interchangeability Adjustment" in "R4 Mechanism" that is separated volume.)

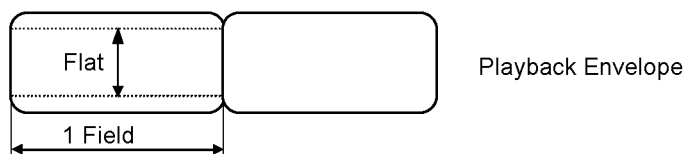
Alignment Tape	VFM8080HQFP
Test Point of Playback Envelope	TW3001 (or TW4502)



LINEARITY ADJUSTMENT

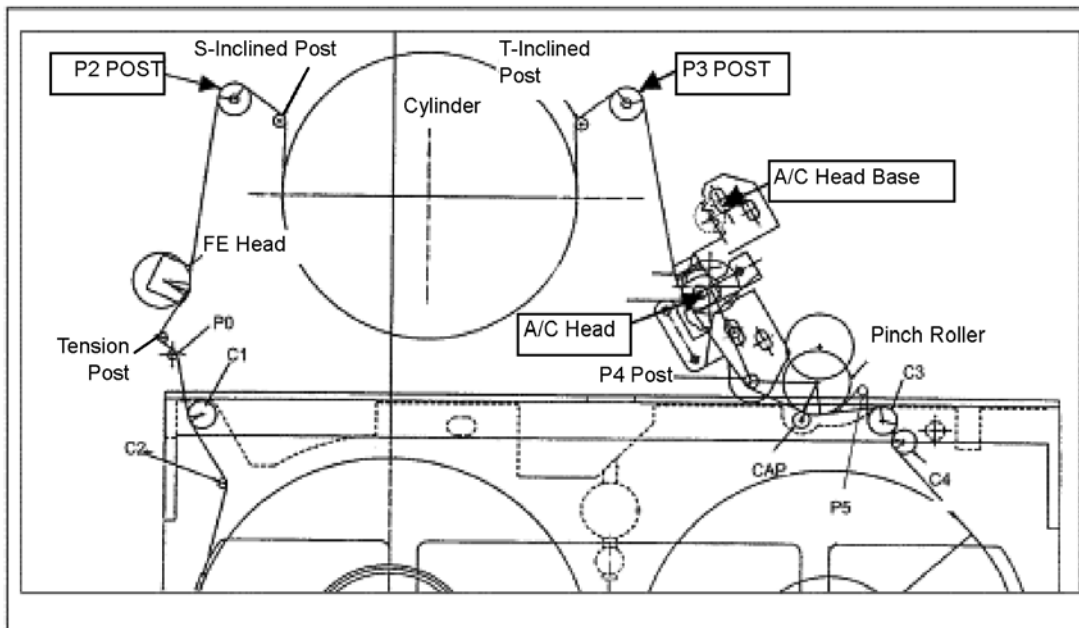
1. After turning off the Auto tracking, playback the alignment Tape and press [CH UP] and [CH DOWN] keys simultaneously to adjust the tracking to FIX value.
2. Adjust the LINEARITY so that the envelope is flat when moving tracking to (+) and (-) directions.

Alignment Tape	VFM8080HQFP
Test Point of Playback Envelope	TW3001 (or TW4502)



● Main symptoms and Adjustment point

Envelope	Post Name		Adjustment Method
	P2 Post		Turn P2 Post counter-clockwise (Approx. 1/2 revolution)
	P2 Post		Turn P2 Post clockwise (Approx. 1/4 revolution)
	P3 Post		Turn P3 Post clockwise (Approx. 1/2 revolution)
	P3 Post		Turn P3 Post counter-clockwise (Approx. 1/4 revolution)
	P2 Post		Turn P2 Post clockwise (Less than 1 revolution)
	P3 Post		Turn P3 Post counter-clockwise (Less than 1 revolution)



10.3. Standard Inspection Specifications after Making Repairs

After making repairs, we recommend performing the following inspection, to check normal operation.

No.	Procedure	Item to Check
1	Turn on the power, and confirm items pointed out.	Items pointed out should reappear.
2	Insert RAM disc.	The Panasonic RAM disc should be recognized.
3	Enter the SS mode.	No abnormality should be seen in the picture, sound or operation.
4	Perform auto recording and playback for one minute using the RAM disc.	No abnormality should be seen in the picture, sound or operation. *Panasonic DVD-RAM disc should be used when recording and playback.
5	If a problem is caused by a VCD, DVD-R, DVD-Video, Audio-CD, or MP3, playback the test disc.	No abnormality should be seen in the picture, sound or operation.
6	Models with SD Card Slot Jack: In case of that the trouble is caused by SD card.	Models with SD Card Jack; 1) SD Card: Check to be able to display and copy the picture.
7	After checking and making repairs, upgrade the firmware to the latest version.	Make sure that [UPD OK] appears in the FL displays.
8	Transfer [9][9] in the service mode setting, and initialize the service settings (return various settings and error information to their default values. The laser time is not included in this initialization).	Make sure that [CLR] appears in the FL display. After checking it, turn the power off.

Use the following checklist to establish the judgement criteria for the picture and sound.

Item	Contents	Check	Item	Contents	Check
Picture	Block noise		Sound	Distorted sound	
	Crosscut noise			Noise (static, background noise, etc.)	
	Dot noise			The sound level is too low.	
	Picture disruption			The sound level is too high.	
	Not bright enough			The sound level changes.	
	Too bright				
	Flickering color				
	Color fading				

Service Manual

Diagrams and Replacement Parts List

Blu-ray Disc Player
Model No.
DMP-BD70VP
DMP-BD70VPC

Vol. 1
Colour
(K).....Black Type

S1. About Indication of The Schematic Diagram

S1.1. Important Safety Notice

COMPONENTS IDENTIFIED WITH THE MARK  HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY THE SAME TYPE.

- 1.Although reference number of the parts is indicated on the P.C.B. drawing and/or schematic diagrams, it is NOT mounted on the P.C.B. when it is displayed with "\$" mark.
- 2.It is only the "Test Round" and no terminal (Pin) is available on the P.C.B. when the TP (Test Point) indicated as "●" mark.
- 3.The voltage being indicated on the schematic diagram is measured in "Standard-Playback" mode when there is no specify mode is mentioned.
- 4.Although the voltage and waveform available on here is measured with standard frame, it may be differ from actual measurement due to modification of circuit and so on.
- 5.The voltage being indicated here may be include observational-error (deviation) due to internal-resistance and/or reactance of equipment. Therefore, handle the value indicated on here as reference.
- 6.Use the parts number indicated on the Replacement Parts List .
- 7.Indication on Schematic diagrams:

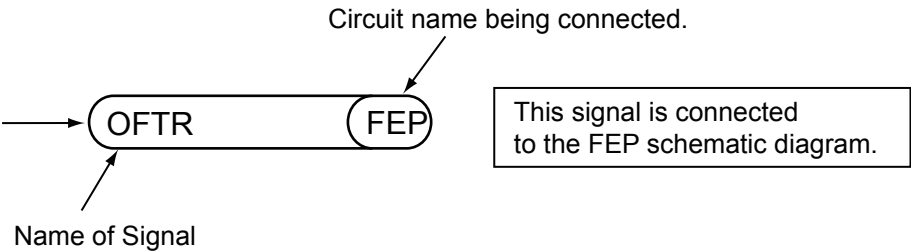


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S2. Voltage and Waveform Chart

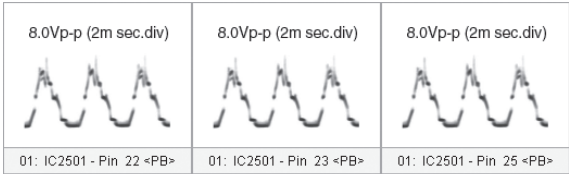
Note) Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.
Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

S2.1. Main P.C.B.

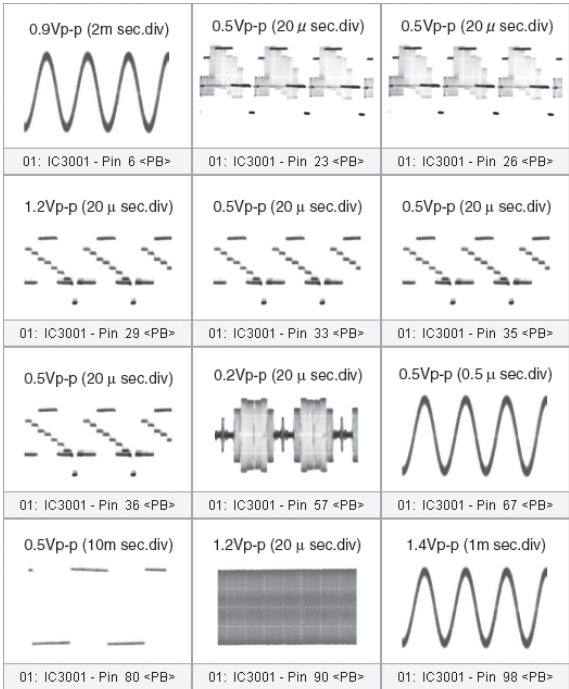
REF No.	PIN No.	PB	STOP	REF No.	PIN No.	PB	STOP	REF No.	PIN No.	PB	STOP	REF No.	PIN No.	PB	STOP	REF No.	PIN No.	PB	STOP	REF No.	PIN No.	PB	STOP	REF No.	PIN No.	PB	STOP	REF No.	PIN No.	PB	STOP				
IC1511	1	1.2	1.2	IC3001	24	3.1	3.1	IC3001	85	2.4	2.4	IC4501	11	0	0	IC6001	8	4.9	4.9	IC6001	69	2.2	2.2	IC7502	25	-17.8	-20.7	P7501	14	-15.6	-15.6	Q4502	B	5	5
IC1511	2	2.4	2.4	IC3001	25	0	0	IC3001	86	2.3	2.3	IC4501	12	2.1	2.1	IC6001	9	3.2	3.2	IC6001	70	4.2	4.2	IC7502	26	-20.7	-20.7	P7501	15	-21.7	-21.7	Q7501	S	2.6	2.6
IC1511	3	5	5	IC3001	26	2.9	2.9	IC3001	87	2.4	2.4	IC4501	13	0.1	0.1	IC6001	10	0	0	IC6001	71	4.2	4.2	IC7502	27	-20.7	-20.7	P7502	1	5	5	Q7501	D	3.3	3.3
IC1511	4	0	0	IC3001	27	1.6	1.6	IC3001	88	0	0	IC4501	14	0.1	0.1	IC6001	11	0	4.7	IC6001	72	4.1	4.1	IC7502	28	-20.7	-20.7	P7502	2	0	0	Q7501	G	2.2	2.2
IC1512	1	0	0	IC3001	28	0	0	IC3001	89	2.3	2.3	IC4501	15	0.1	0.1	IC6001	12	1.3	1.3	IC6001	73	-	-	IC7502	29	-12.2	-20.8	P7502	3	2.1	2.1	Q7502	E	-15.6	-15.6
IC1512	2	1.2	1.2	IC3001	29	2.4	2.4	IC3001	90	2.3	2.3	IC4501	16	2.5	2.5	IC6001	13	0	0	IC6001	74	0	0	IC7502	30	-21.7	-21.7	P7502	4	0	0	Q7502	C	-15.6	-15.6
IC1512	3	0.2	0.2	IC3001	30	2.8	2.8	IC3001	91	2.3	2.3	IC4501	17	0.5	0.5	IC6001	14	4.9	4.9	IC6001	75	4.6	4.6	IC7502	31	-21	-21	P7502	5	3.2	3.2	Q7502	B	-14.9	-14.9
IC1512	4	0	0	IC3001	31	0.4	0.4	IC3001	92	5.1	5.1	IC4501	18	2.5	2.5	IC6001	15	3.8	3.8	IC6001	76	2.5	2.5	IC7502	32	-20.8	-20.8	P7502	6	12.3	12.3	Q7503	E	-18.4	-18.4
IC2001	1	6.1	6.1	IC3001	32	2.2	2.2	IC3001	93	0.6	0.6	IC4501	19	2.5	2.5	IC6001	16	-	-	IC6001	77	2.4	2.4	IC7502	33	-21	-21	P7502	7	12.3	12.3	Q7503	C	3.3	3.3
IC2001	2	0	0	IC3001	33	2.1	2.1	IC3001	94	2.5	2.5	IC4501	20	2.1	2.1	IC6001	17	2.5	2.5	IC6001	78	-	-	IC7502	34	-21	-21	P7502	8	0	0	Q7503	B	-18.4	-18.4
IC2001	3	4.6	4.6	IC3001	34	3.1	3.1	IC3001	95	2.5	2.5	IC4501	21	2.1	2.1	IC6001	18	2.4	0	IC6001	79	4.8	4.8	IC7502	35	-21	-21	P7502	9	0	0	Q7504	E	3.3	3.3
IC2001	4	-	-	IC3001	35	3.1	3.1	IC3001	96	2.5	2.5	IC4501	22	2.1	2.1	IC6001	19	0	0	IC6001	80	0.2	0.2	IC7502	36	-18.4	-18.4	P7502	10	12.3	12.3	Q7504	C	3.3	3.3
IC2001	5	5	5	IC3001	36	2.3	2.3	IC3001	97	0	0	IC4501	23	0	0	IC6001	20	4.8	4.8	IC6001	81	-	-	IC7502	37	-18.2	-18.2	P7502	11	12.3	12.3	Q7504	B	2.5	2.5
IC2501	1	12.6	12.6	IC3001	37	3	3	IC3001	98	2.3	2.3	IC4501	24	2.1	2.1	IC6001	21	4.9	4.9	IC6001	82	0	0	IC7502	38	-18.2	-18.2	P7502	12	12.3	12.3	QR4001	E	5	5
IC2501	2	0.1	0.1	IC3001	38	2.1	2.1	IC3001	99	0	0	IC4501	25	5.1	5.1	IC6001	22	0	0	IC6001	83	0	0	IC7502	39	-18.2	-18.2	P7502	13	6.1	6.1	QR4001	C	4.9	-27
IC2501	3	0	0	IC3001	39	1.5	1.5	IC3001	100	2.6	2.6	IC4501	26	2.1	2.1	IC6001	23	4.3	4.3	IC6001	84	0	0	IC7502	40	-18.2	-18.2	P7502	14	2.8	2.8	QR4001	B	0	4.8
IC2501	4	0.1	0.1	IC3001	40	2.1	2.1	IC3901	1	1.7	1.7	IC4501	27	0	0	IC6001	24	2	2	IC6001	85	0	0	IC7502	41	-18.2	-18.2	P7502	15	2.6	2.6	QR4082	E	0	0
IC2501	5	0	0	IC3001	41	2.5	2.5	IC3901	2	5	5	IC4501	28	4.3	4.3	IC6001	25	-	-	IC6001	86	2.6	2.6	IC7502	42	-18.2	-18.2	P7502	16	2.5	2.5	QR4082	C	5.6	5.6
IC2501	6	0	0	IC3001	42	2	2	IC3901	3	0	0	IC4501	29	1.8	1.8	IC6001	26	4.8	4.8	IC6001	87	2.6	2.6	IC7502	43	3.3	3.3	P7502	17	3.3	3.3	QR4082	B	0	0
IC2501	7	16.2	16.2	IC3001	43	-	-	IC3902	1	5	5	IC4501	30	1.8	1.8	IC6001	27	0	0	IC6001	88	0	0	IC7502	44	0	0	P7502	18	0	0	QR4501	E	0	0
IC2501	8	0	0	IC3001	44	0	0	IC3902	2	0	0	IC4501	31	0	0	IC6001	28	0	0	IC6001	89	0	0	IC7503	1	6.1	6.1	P7502	19	0	0	QR4501	C	0	0
IC2501	9	2.8	2.8	IC3001	45	3.2	3.2	IC3902	3	0	0	IC4501	32	2.5	2.5	IC6001	29	-	-	IC6001	90	1.3	1.3	IC7503	2	0	0	P7502	20	2.8	2.8	QR4501	B	4.8	4.8
IC2501	10	1.6	1.6	IC3001	46	3.2	3.2	IC3902	4	2.2	2.2	IC4501	33	2.5	2.5	IC6001	30	0	0	IC6001	91	2.5	2.5	IC7503	3	1.2	1.2	P7502	21	4.9	4.9	QR4502	E	0	0
IC2501	11	1.6	1.6	IC3001	47	5	5	IC3902	5	0	0	IC4501	34	1.5	1.5	IC6001	31	4.8	4.8	IC6001	92	2.5	2.5	IC7503	4	3.3	3.3	P7502	22	0	0	QR4502	C	-0.8	-0.8
IC2501	12	0.6	0.6	IC3001	48	5	5	IC3902	6	0.6	0.6	IC4501	35	2.5	2.5	IC6001	32	4.8	4.8	IC6001	93	0	0	IC7503	5	6.1	6.1	P7502	23	3.2	3.2	QR4502	B	0	0
IC2501	13	1.5	1.5	IC3001	49	3.1	3.1	IC3902	7	5	5	IC4501	36	0	0	IC6001	33	0	0	IC6001	94	2.3	2.3	P3901	1	0	0	Q1501	E	0	0	QR4503	E	0	0
IC2501	14	2.4	2.4	IC3001	50	5	5	IC3902	8	0.6	0.6	IC4501	37	2.1	2.1	IC6001	34	4.9	4.9	IC6001	95	2.8	2.8	P3901	2	0.6	0.4	Q1501	C	4.9	4.9	QR4503	C	0	0
IC2501	15	2.5	2.5	IC3001	51	1.9	1.9	IC3902	9	2.2	2.2	IC4501	38	0	0	IC6001	35	0	0	IC6001	96	2.5	2.5	P3901	3	0	0	Q1502	E	0	0	QR4503	B	-0.8	-0.8
IC2501	16	2.5	2.5	IC3001	52	5	5	IC3902	10	5	5	IC4501	39	0	0	IC6001	36	0	0	IC6001	97	2.5	2.5	P3901	4	1.4	1.2	Q1502	C	4.9	4.9	QR4504	E	0	0
IC2501	17	2.5	2.5	IC3001	53	2.6	2.6	IC3902	11	1.4	1.4	IC4501	40	5.1	5.1	IC6001	37	5	5	IC6001	98	5	5	P3901	5	0	0	Q3001	E	1.6	1.6	QR4504	C	0	0
IC2501	18	1.3	1.3	IC3001	54	0	0	IC3902	12	0	0	IC4501	41	0	0	IC6001	38	-	-	IC6001	99	5	5	P3901	6	1.8	1.6	Q3001	C	5	5	QR4504	B	-0.8	-0.8
IC2501	19	5	5	IC3001	55	1.9	1.9	IC3902	13	1.6	1.6	IC4501	42	4	4	IC6001	39	-	-	IC6001	100	3.3	3.3	P3901	7	0	0	Q3001	B	2.2	2.2	QR7501	E	3.3	3.3
IC2501	20	3.6	3.8	IC3001	56	0	0	IC3902	14	0	0	IC4501	43	3.8	3.8	IC6001	40	0	0	IC6301	1	6.1	6.1	P3901	8	1.6	1.5	Q3002	E	5.1	5.1	QR7501	C	3.2	3.2
IC2501	21	12.6	12.6	IC3001	57	2.2	2.2	IC3902	15	1.8	1.8	IC4501	44	3.2	3.2	IC6001	41	-	-	IC6301	2	0	0	P3901	9	5	5	Q3002	C	5.6	5.6	QR7501	B	0	0
IC2501	22	3.6	3.8	IC3001	58	2.2	2.2	IC3902	16	5	5	IC4501	45	1.6	1.6	IC6001	42	-	-	IC6301	3	4.6	4.6	P3901	10	0	0	Q3002	B	5.8	5.8	QR7502	E	0	0
IC2501	23	3.6	3.8	IC3001	59	5	5	IC3902	17	2.2	2.2	IC4501	46	4.9	4.9	IC6001	43	5	5	IC6301	4	-	-	P3901	11	0	3.9	Q3004	E	1.7	1.7	QR7502	C	0	0
IC2501	24	0	0	IC3001	60	5	5	IC3902	18	2.2	2.2	IC4501	47	2.5	2.5	IC6001	44	0	0	IC6301	5	5	5	P3901	12	0	0	Q3004	C	5.1	5.1	QR7502	B	3.3	3.3
IC2501	25	3.6	3.8	IC3001	61	4	4	IC3902	19	0	0	IC4501	48	2.5	2.5	IC6001	45	-	-	IC7502	1	0	0	P3901	13	2.2	2.2	Q3004	B	2.4	2.4	QR7503	E	0	0
IC3001	1	0	0	IC3001	62	2.3	2.3	IC3902	20	2.2	2.2	IC4501	49	0.3	0.3	IC6001	46	0	0	IC7502	2	0	0	P3901	14	2.2	2.2	Q3901	E	0	0	QR7503	C	0	0
IC3001	2	0	0	IC3001	63	2.2	2.2	IC3902	21	2.2	2.2	IC4501	50	0.9	0.9	IC6001	47	1.4	1.4	IC7502	3	0	0	P3901	15	0	0	Q3901	C	0	0	QR7503	B	3.1	3.1
IC3001	3	0	0	IC3001	64	2.4	2.4	IC3902	22	0	0	IC4501	51	6.4	6.4	IC6001	48	2.1	2.1	IC7502	4	3.3	3.3	P3901	16	5.8	5.8	Q3901	B	-0.1	-0.1				
IC3001	4	5.1	5.1	IC3001	65	2.2	2.2	IC3902	23	2.2	2.2	IC4501	52	6.7	6.7	IC6001	49	0	0	IC7502	5	2.8	2.8	P3901	17	5.8	5.8	Q3902	E	0	0				
IC3001	5	2.1	2.1	IC3001	66	2.4	2.4	IC3902	24	2.2	2.2	IC4501	53	6.1	6.1	IC6001	50																		

S2.2. Power P.C.B.

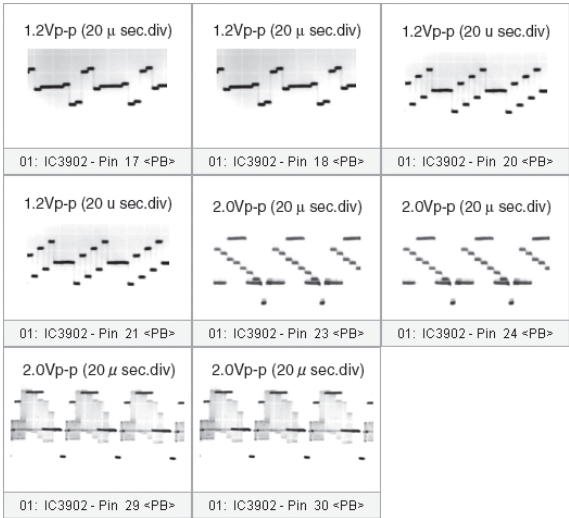
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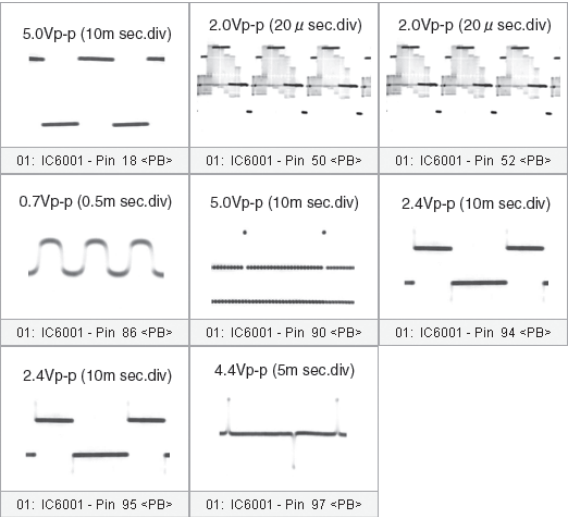
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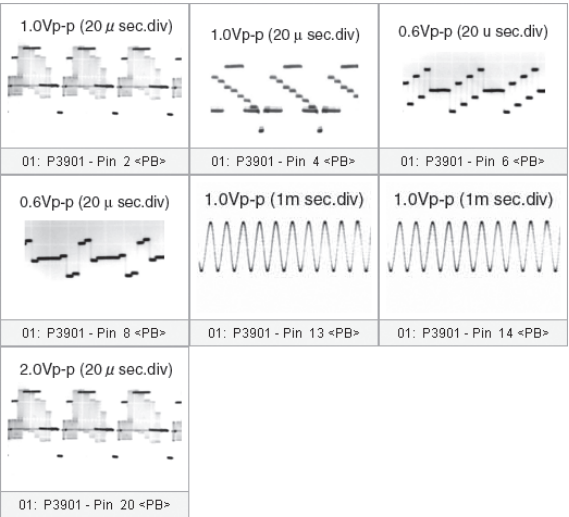
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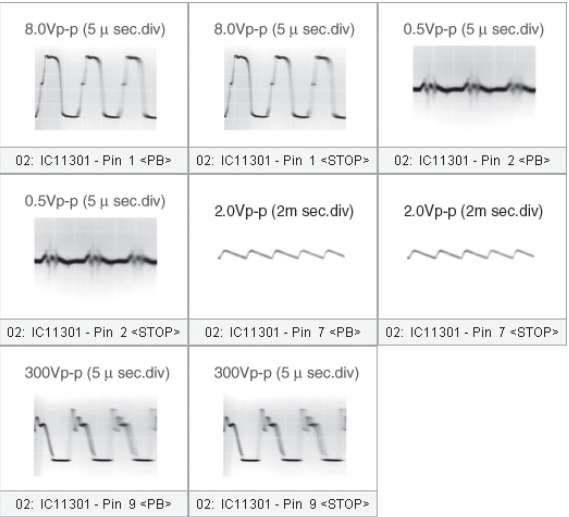


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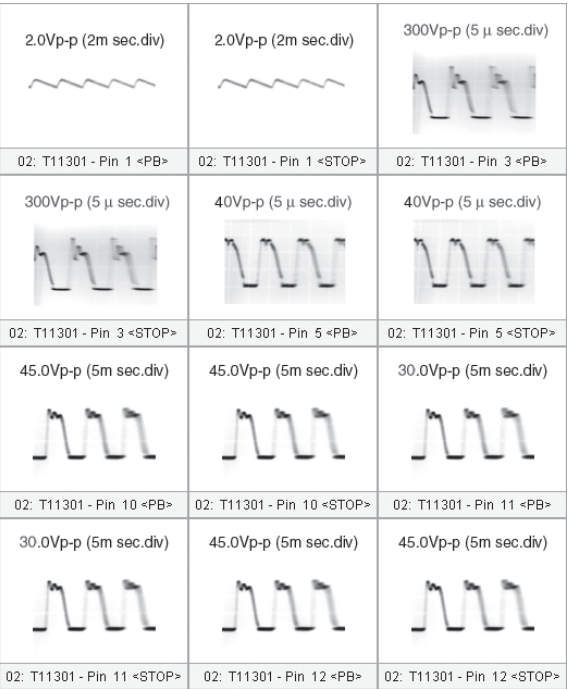


REF No.	PIN No.	PB	STOP	REF No.	PIN No.	PB	STOP
IC11301	1	2.2	2.2	Q14202	8	5.1	5.1
IC11301	2	1.6	1.6	Q14302	1	12.4	12.4
IC11301	3	0	0	Q14302	2	12.4	12.4
IC11301	4	15	15	Q14302	3	12.4	12.4
IC11301	5	0	0	Q14302	4	7.4	7.4
IC11301	6	-	-	Q14302	5	6.1	6.1
IC11301	7	-	-	Q14302	6	6.1	6.1
IC11301	8	-	-	Q14302	7	6.1	6.1
IC11301	9	-	-	Q14302	8	6.1	6.1
IC12202	1	0	0	QR10101	E	0	0
IC12202	2	0	0	QR10101	C	0.1	0.1
IC12202	3	7.9	7.9	QR10101	B	3.2	3.2
IC12202	4	2.5	2.5	QR13101	E	0	0
IC14201	1	12.4	12.4	QR13101	C	0	0
IC14201	2	4.5	4.5	QR13101	B	3.3	3.3
IC14201	3	1.2	1.2	QR14201	E	0	0
IC14201	4	1	1	QR14201	C	0	0
IC14201	5	1.1	1.1	QR14201	B	3.3	3.3
IC14201	6	0	0	QR14202	E	0	0
IC14201	7	7.9	7.9	QR14202	C	4.4	4.4
IC14201	8	12.4	12.4	QR14202	B	0	0
IC14301	1	12.4	12.4	T11301	1	-	-
IC14301	2	1.6	1.6	T11301	2	-	-
IC14301	3	0	0	T11301	3	-	-
IC14301	4	3.3	3.3	T11301	4	-	-
IC14301	5	3.3	3.3	T11301	5	-	-
IC14301	6	0.6	0.6	T11301	6	0	0
IC14301	7	5.4	5.4	T11301	7	0	0
IC14301	8	5.4	5.4	T11301	8	0	0
IC14301	9	1.4	1.4	T11301	9	0	0
IC14301	10	0	0	T11301	10	-	-
IC14301	11	1.6	1.6	T11301	11	-	-
IC14301	12	5.9	5.9	T11301	12	-	-
IC14301	13	1.1	1.1				
IC14301	14	-	-				
IC14301	15	7.4	7.4				
IC14301	16	12.4	12.4				
Q10101	E	0	0				
Q10101	C	6.8	6.8				
Q10101	B	0.1	0.1				
Q10102	1	1.1	1.1				
Q10102	2	0.1	0.1				
Q10102	3	0	0				
Q10102	4	0.1	0.1				
Q12201	1	8.9	8.9				
Q12201	2	7.9	7.9				
Q12201	3	0	0				
Q12201	4	1.7	1.7				
Q13102	1	12.4	12.4				
Q13102	2	12.4	12.4				
Q13102	3	6.1	6.1				
Q13102	4	12.4	12.4				
Q13102	5	12.3	12.3				
Q13102	6	12.3	12.3				
Q14202	1	12.4	12.4				
Q14202	2	12.4	12.4				
Q14202	3	12.4	12.4				
Q14202	4	7.9	7.9				
Q14202	5	5.1	5.1				
Q14202	6	5.1	5.1				
Q14202	7	5.1	5.1				

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<T11301>



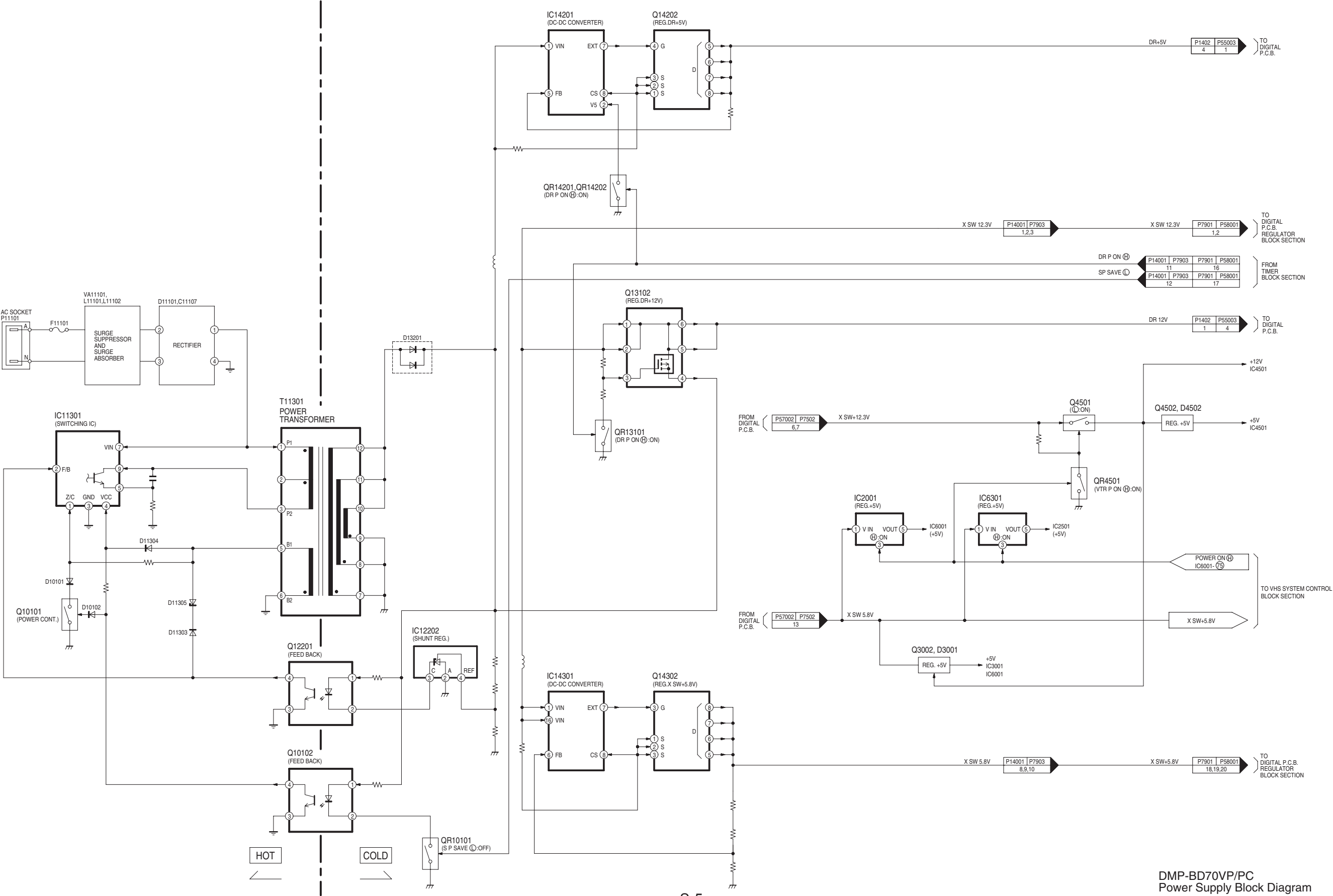
S2.3. Power Sub P.C.B.

REF No.	PIN No.	PB	STOP
Q7902	E	0	0
Q7902	C	35.8	35.8
Q7902	B	0	0
Q7903	E	12.4	12.4
Q7903	C	12.3	12.3
Q7903	B	11.6	11.6
QR7902	E	0	0
QR7902	C	0	0
QR7902	B	3.3	3.3

S2.4. Front R P.C.B.

REF No.	PIN No.	PB	STOP
QR7201	E	0	0
QR7201	C	0	0
QR7201	B	3.1	3.1

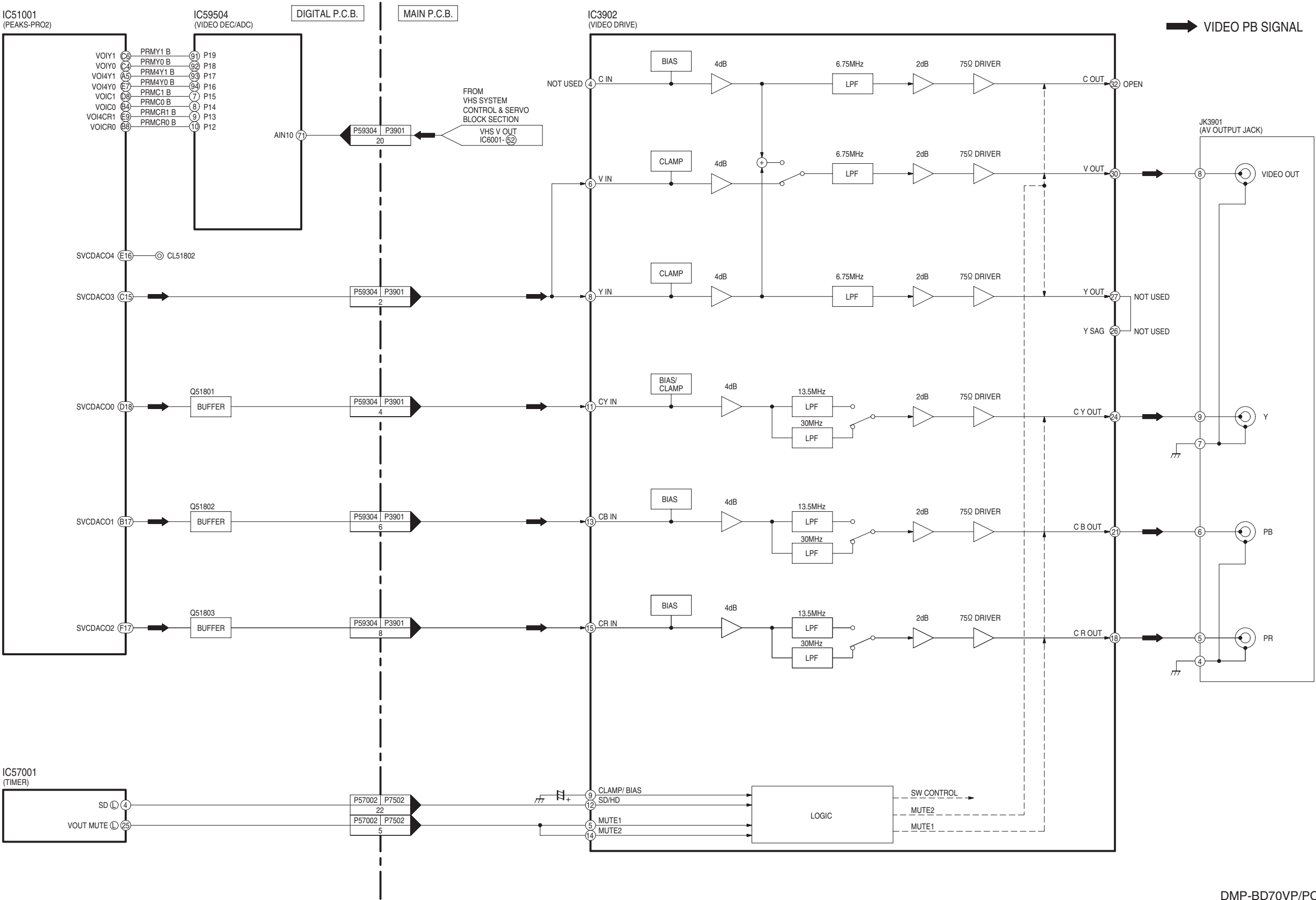
S3. Block Diagram
S3.1. Power Supply Block Diagram



DMP-BD70VP/PC
Power Supply Block Diagram

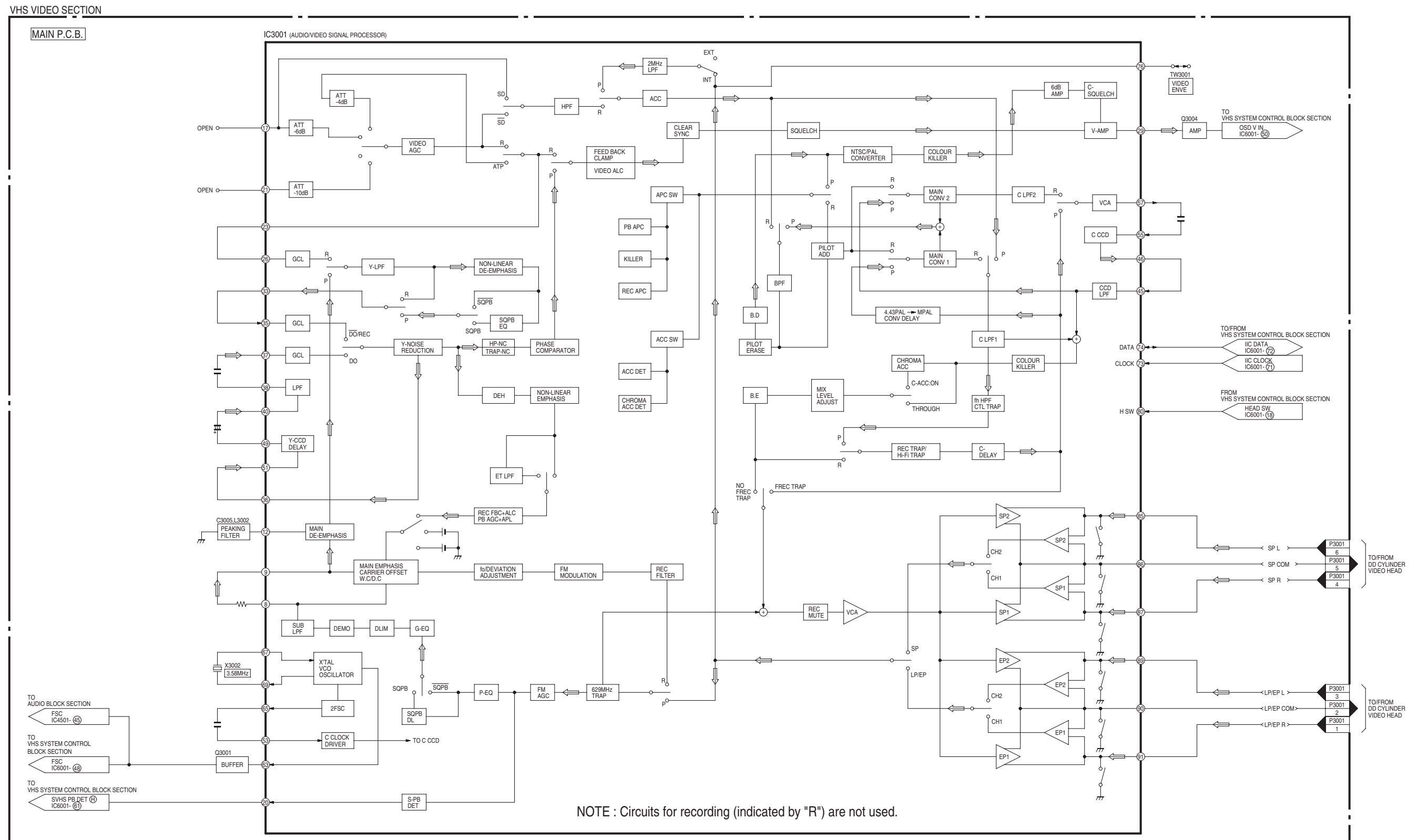
S3.2. Video Block Diagram

S3.2.1. Video Block Diagram (1)

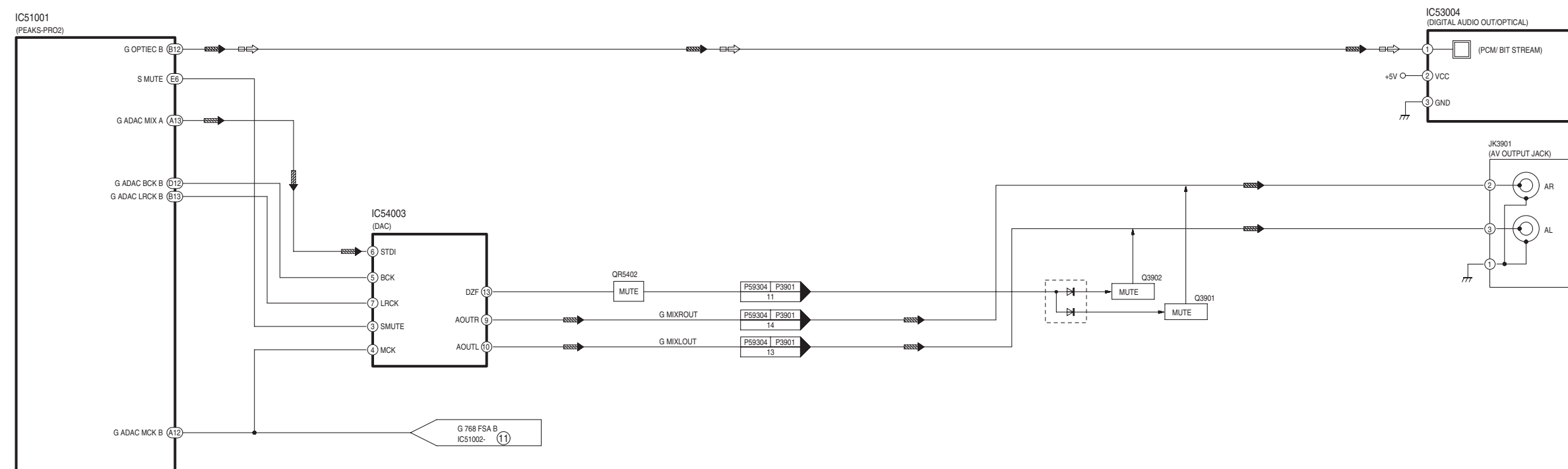
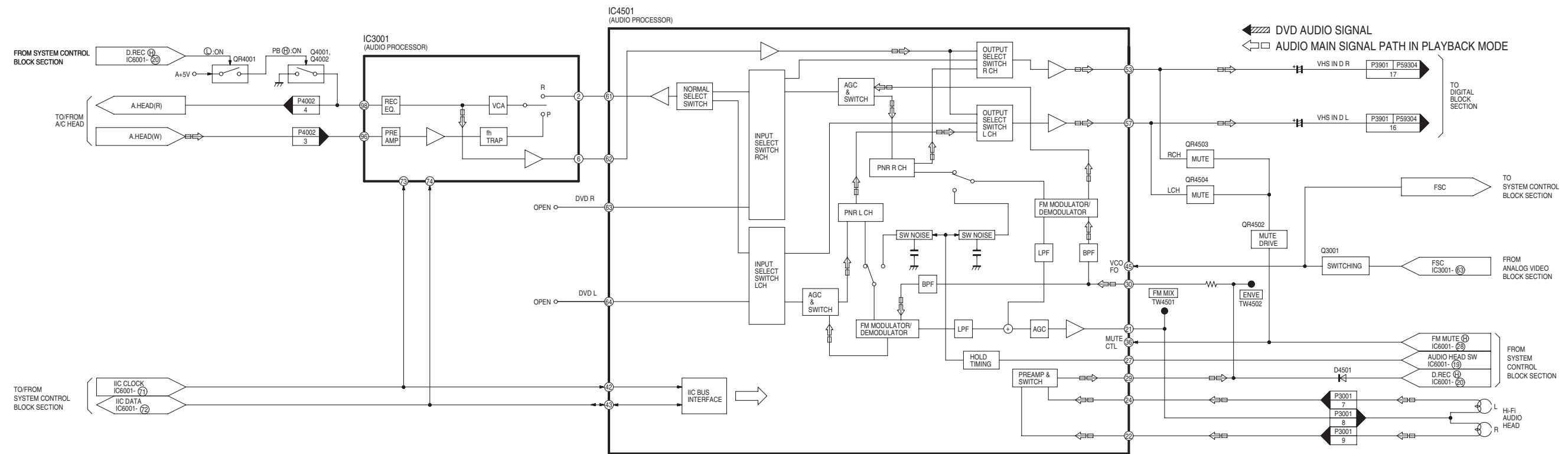


S3.2.2. Video Block Diagram (2)

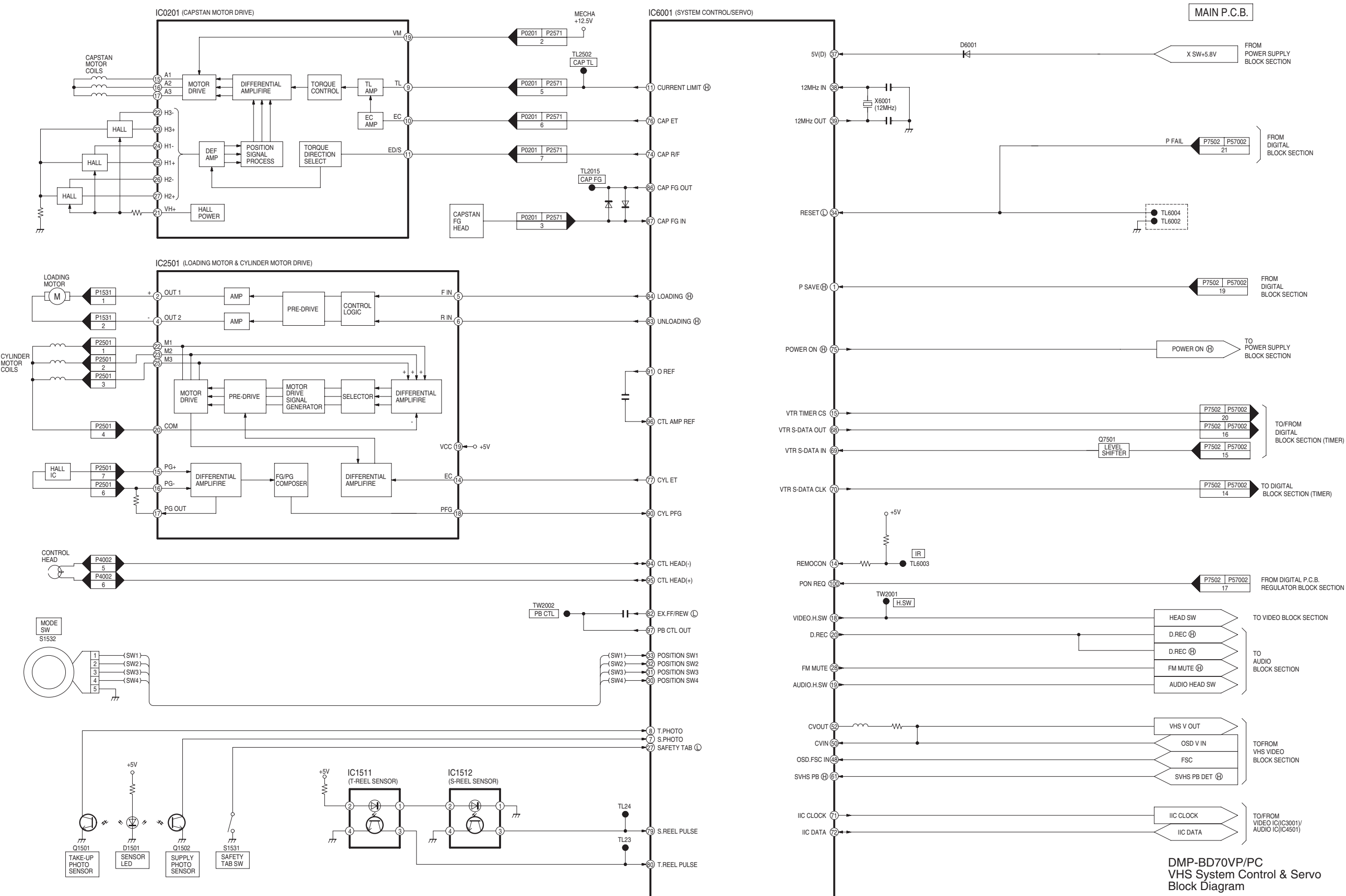
➡ :VHS VIDEO PB SIGNAL



S3.3. Audio Block Diagram

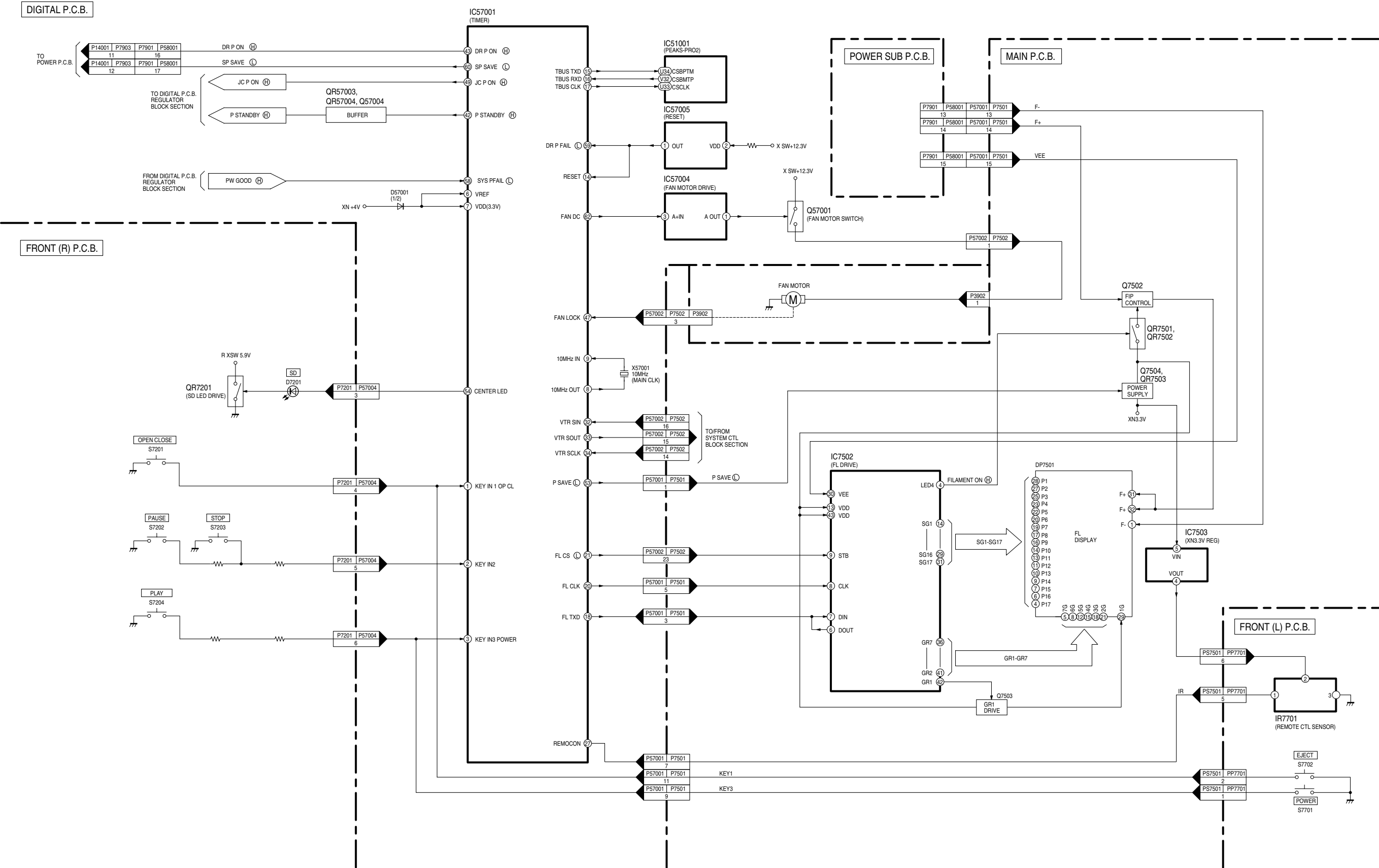


S3.4. VHS System Control & Servo Block Diagram

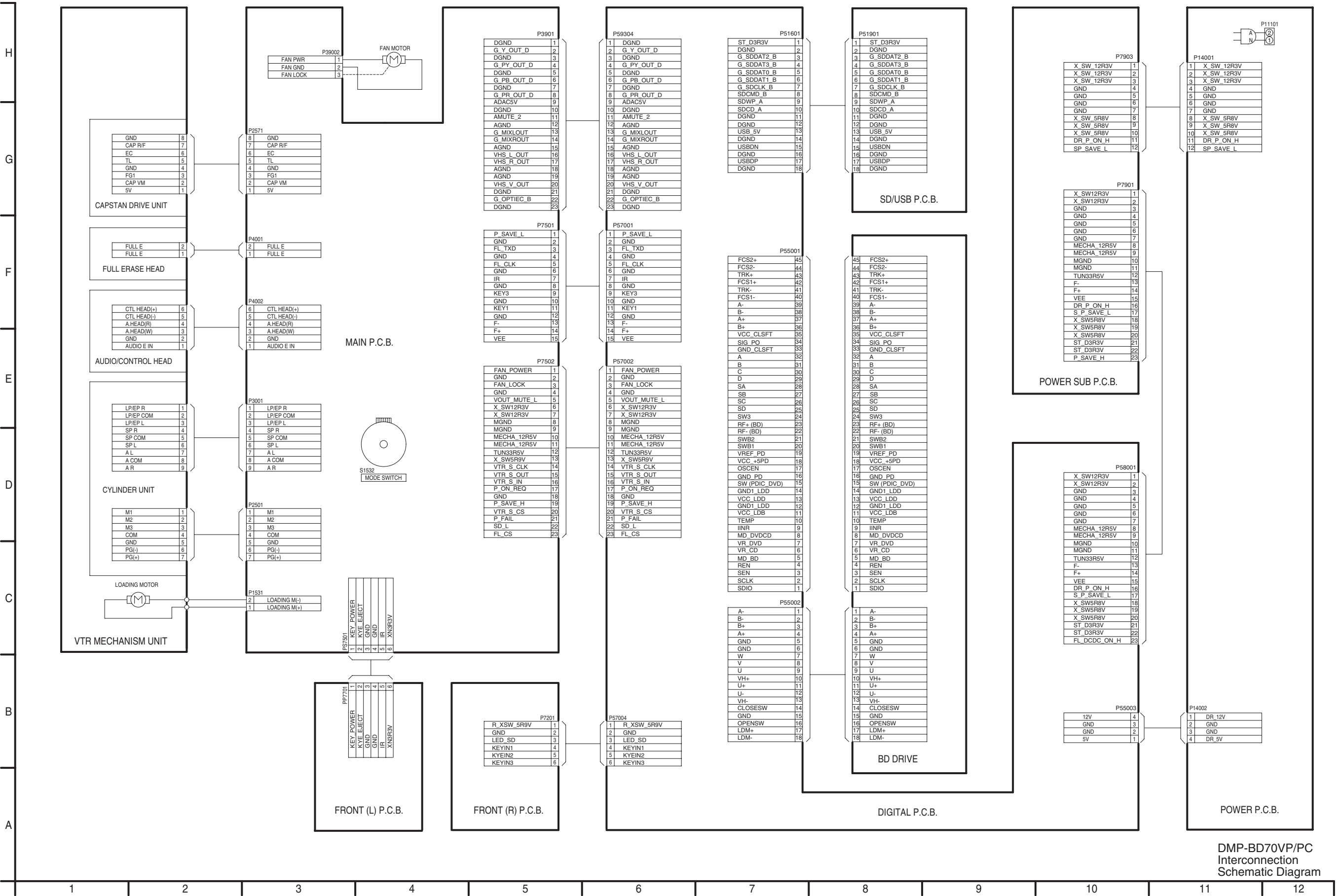


DMP-BD70VP/PC
VHS System Control & Servo
Block Diagram

S3.5. Timer Block Diagram

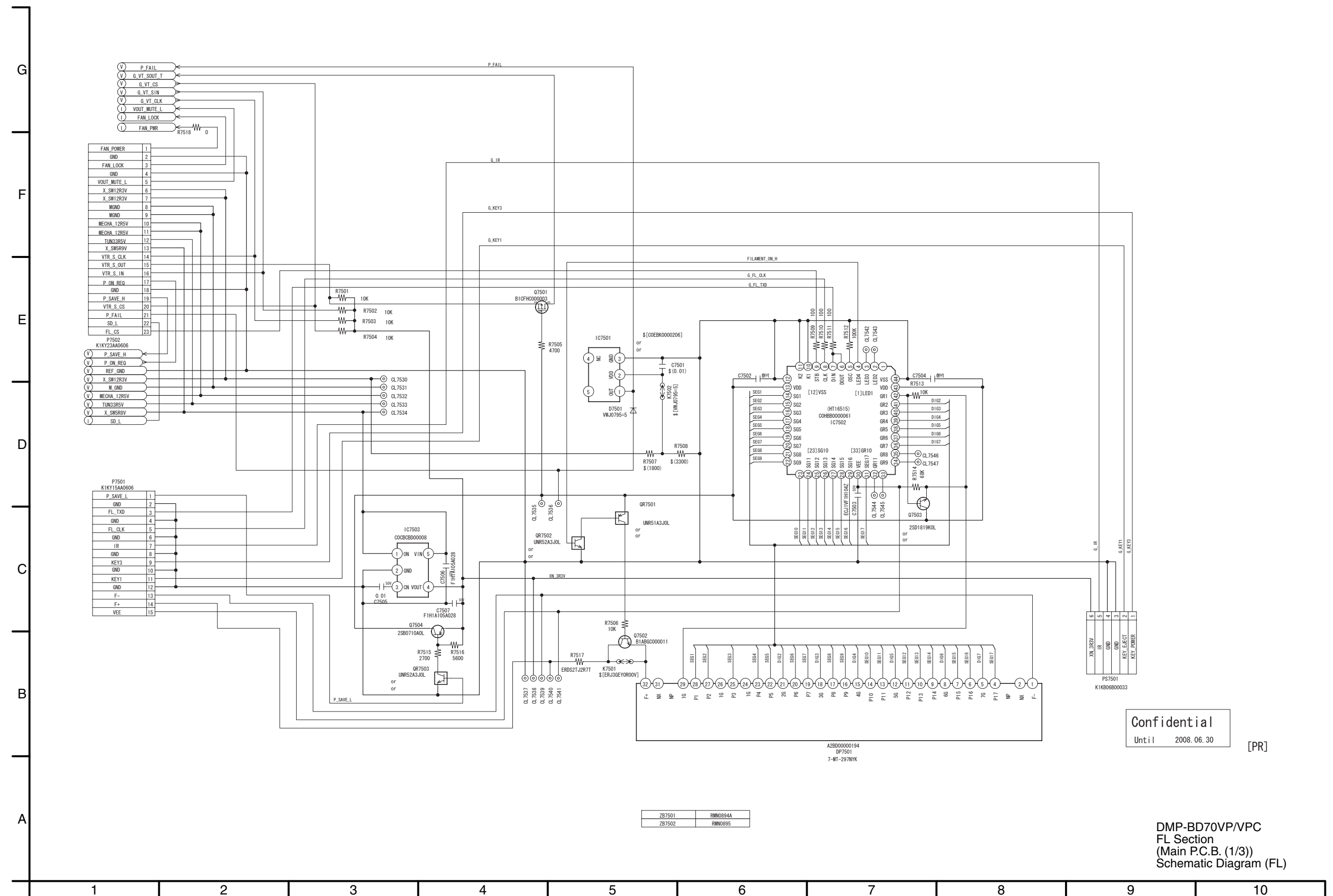


S4. Schematic Diagram
S4.1. Interconnection Diagram

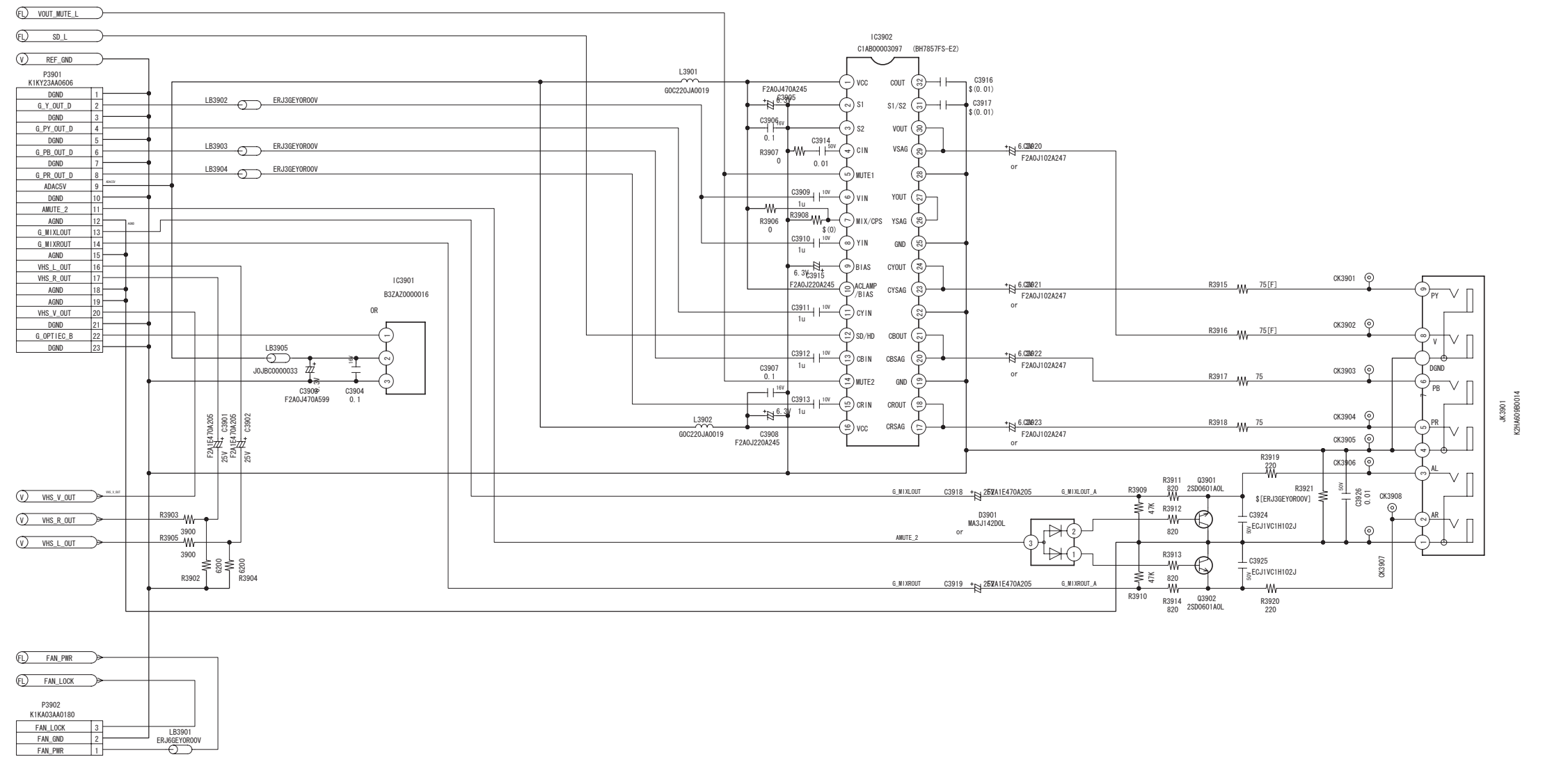


DMP-BD70VP/PC
Interconnection
Schematic Diagram

S4.2. FL (FL) Schematic Diagram



S4.3. IO (I) Schematic Diagram

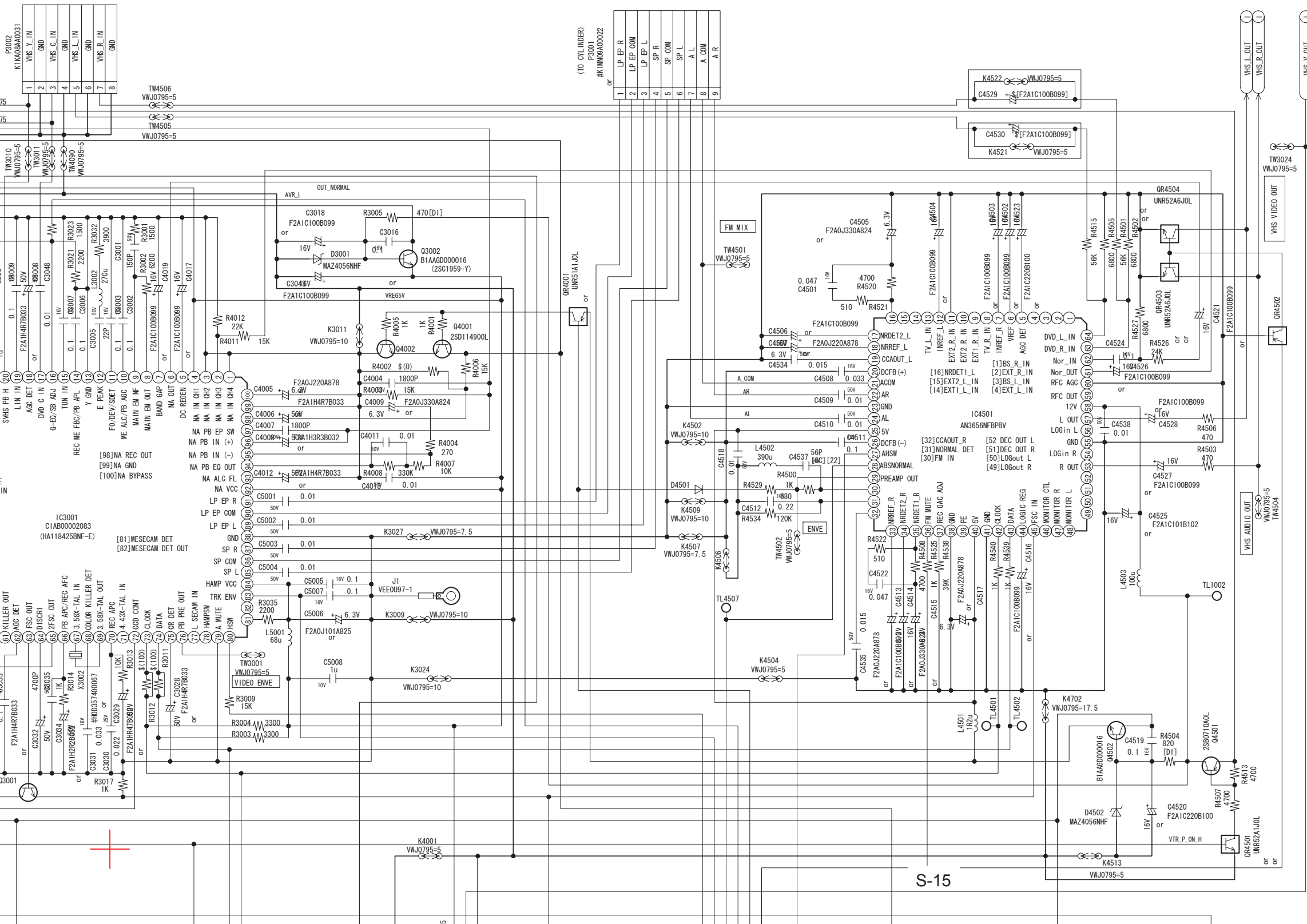


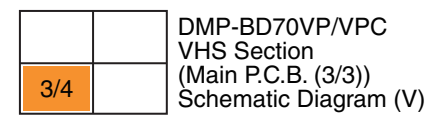
Confidential
Until 2009.09.30

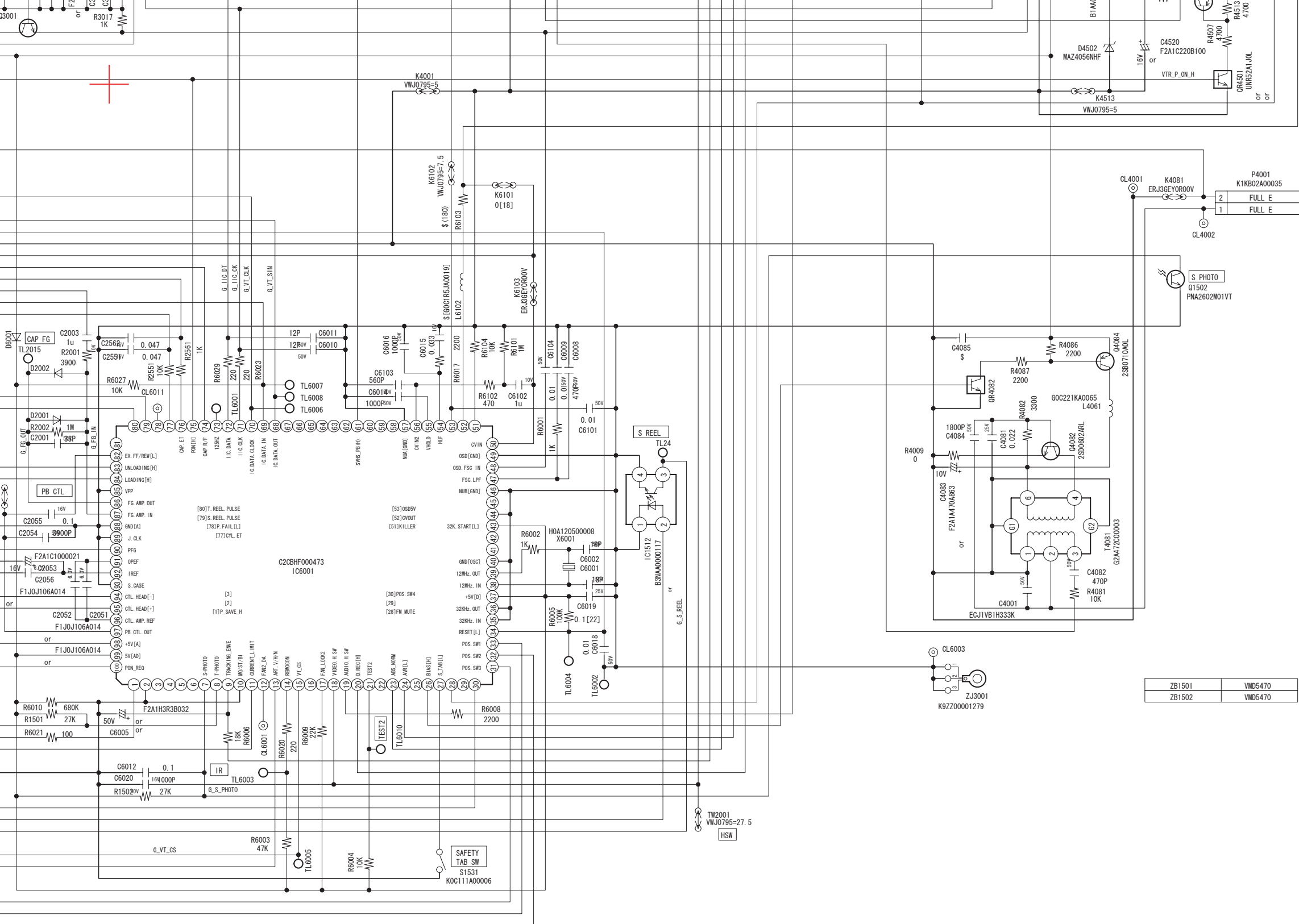
[ES2]

DMP-BD70VP/VPC
IO Section
(Main P.C.B. (2/3))
Schematic Diagram (I)

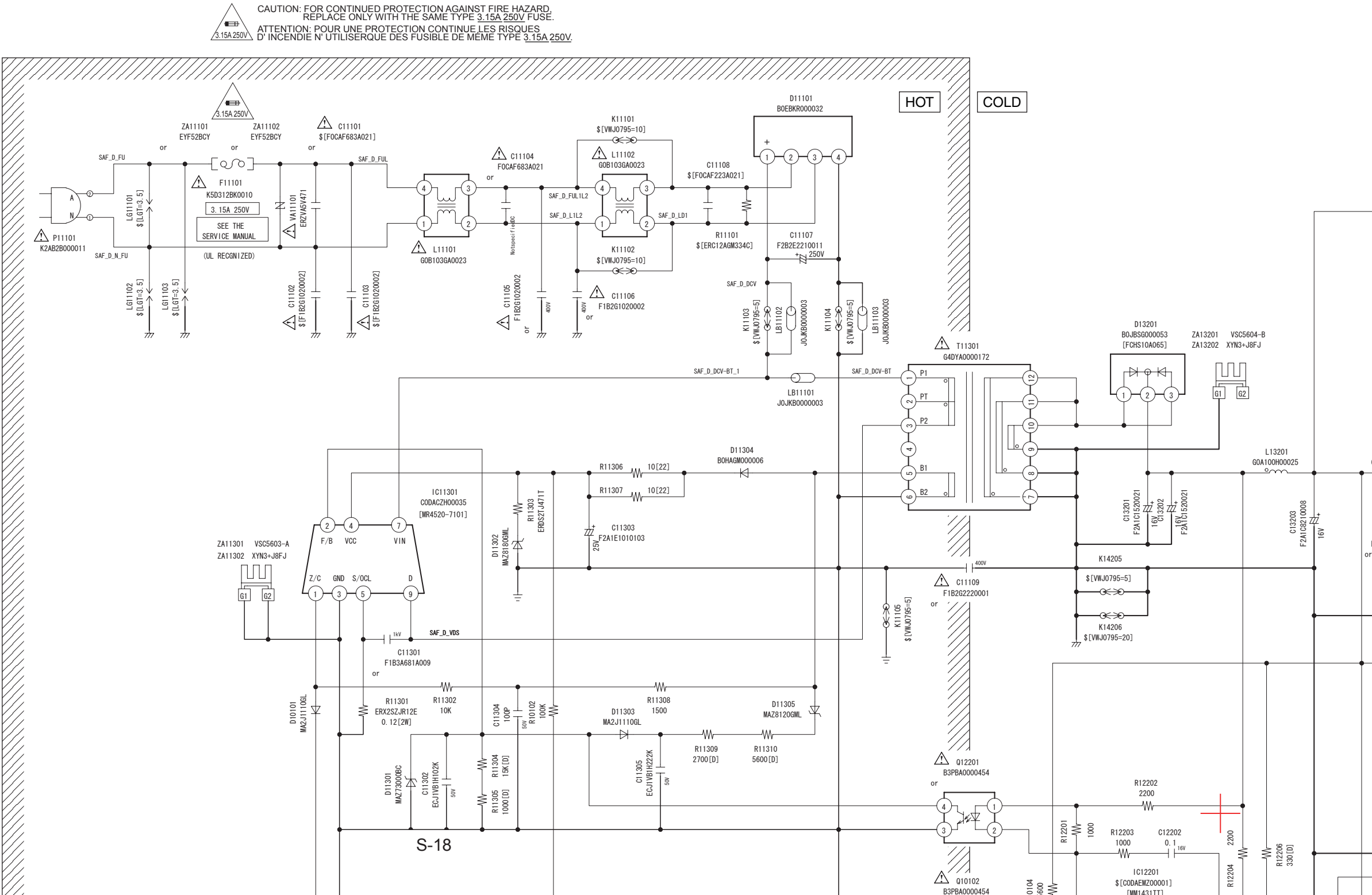
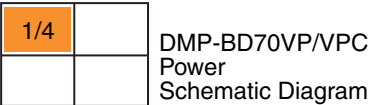


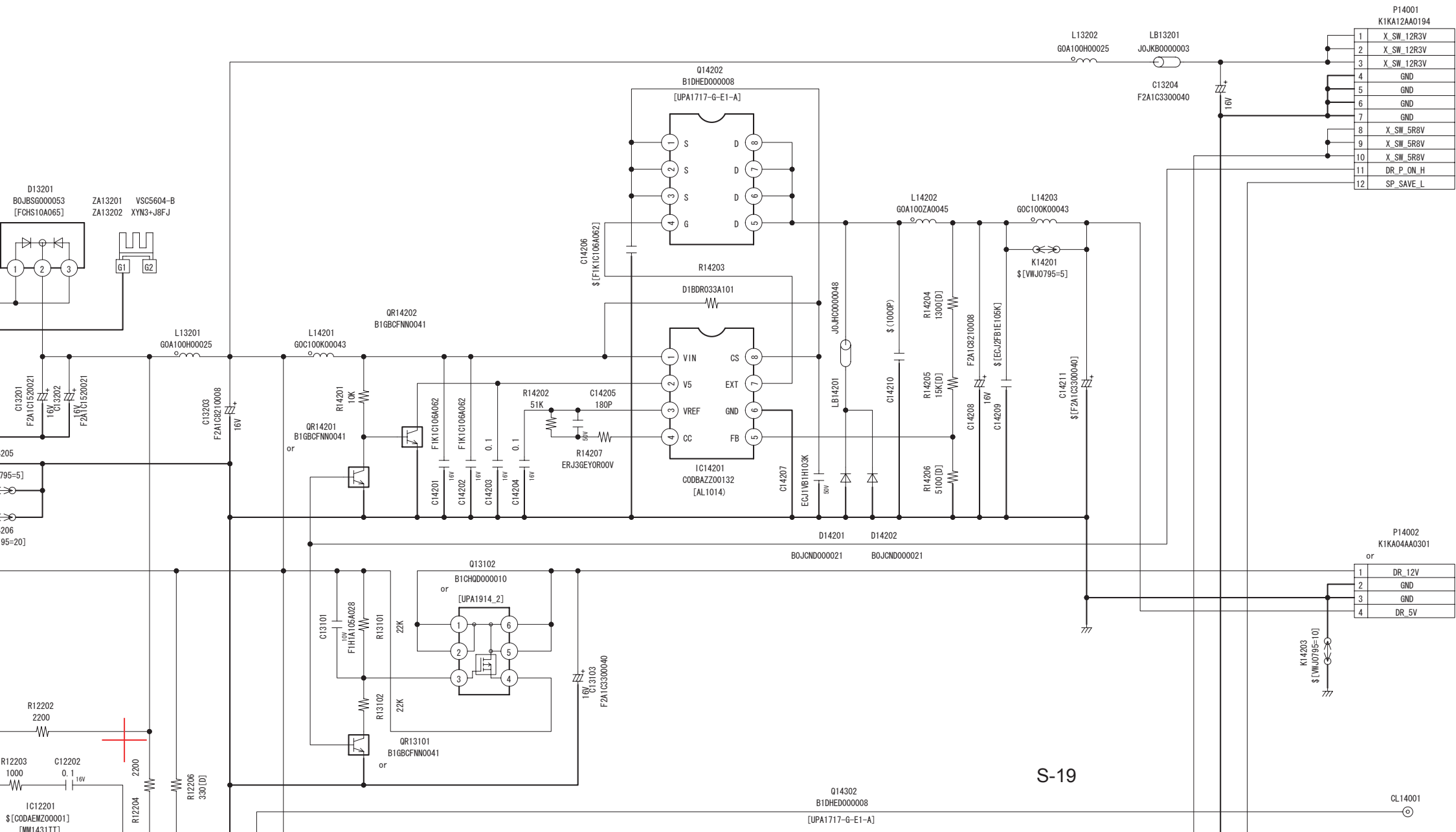




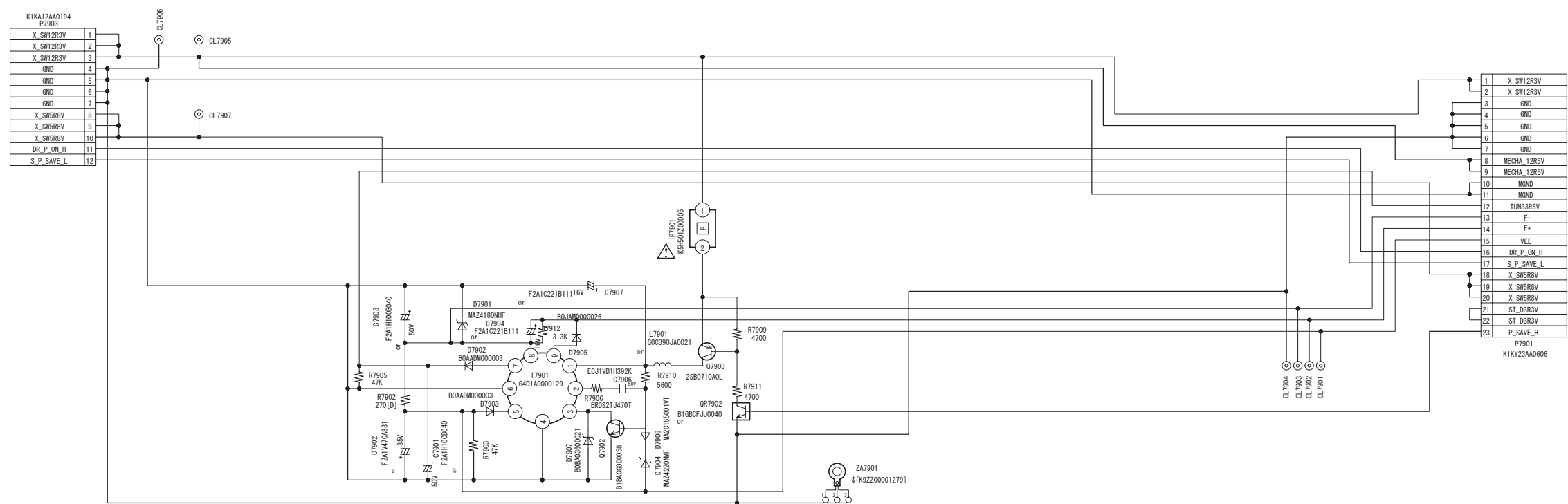


S4.5. Power Schematic Diagram





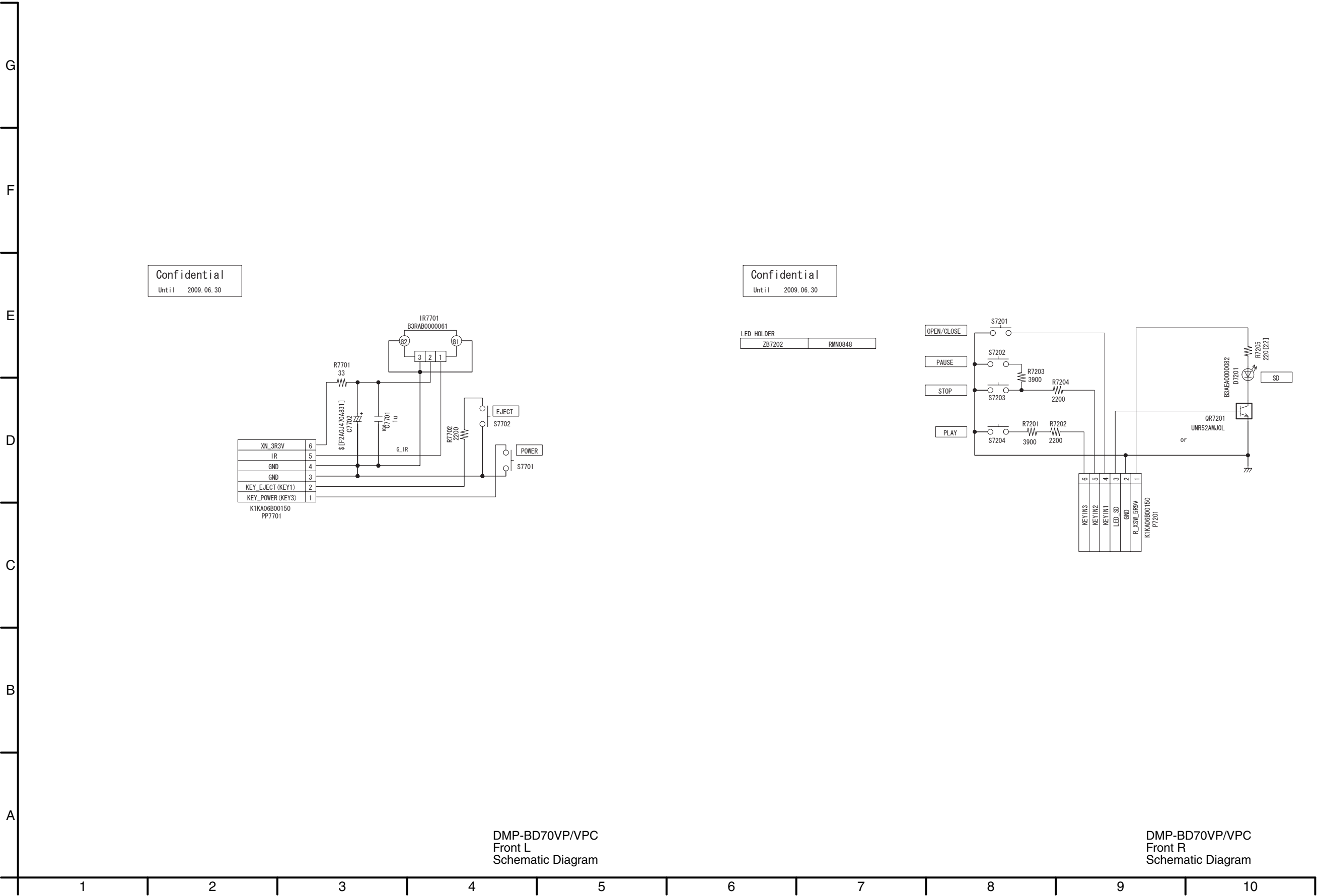
S4.6. Power Sub Schematic Diagram



Confidential
Until 2009/06/30

DMP-BD70VP/VPC
Power Sub
Schematic Diagram

S4.7. Front L Schematic Diagram / S4.8. Front R Schematic Diagram



Confidential

Until 2009.06.30

LED HOLDER

ZB7202

RMN0848

OPEN/CLOSE

PAUSE

STOP

PLAY

S7201

S7202

S7203

S7204

R7203

3900

R7204

2200

R7201

3900

R7202

2200

KEY_IN3

KEY_IN2

KEY_IN1

LED_SD

GND

R_XSWL5R0V

K1KA06B00150

P7201

OR7201

UNR52AMJOL

or

B3AE4000082

D7201

R7205

220[22]

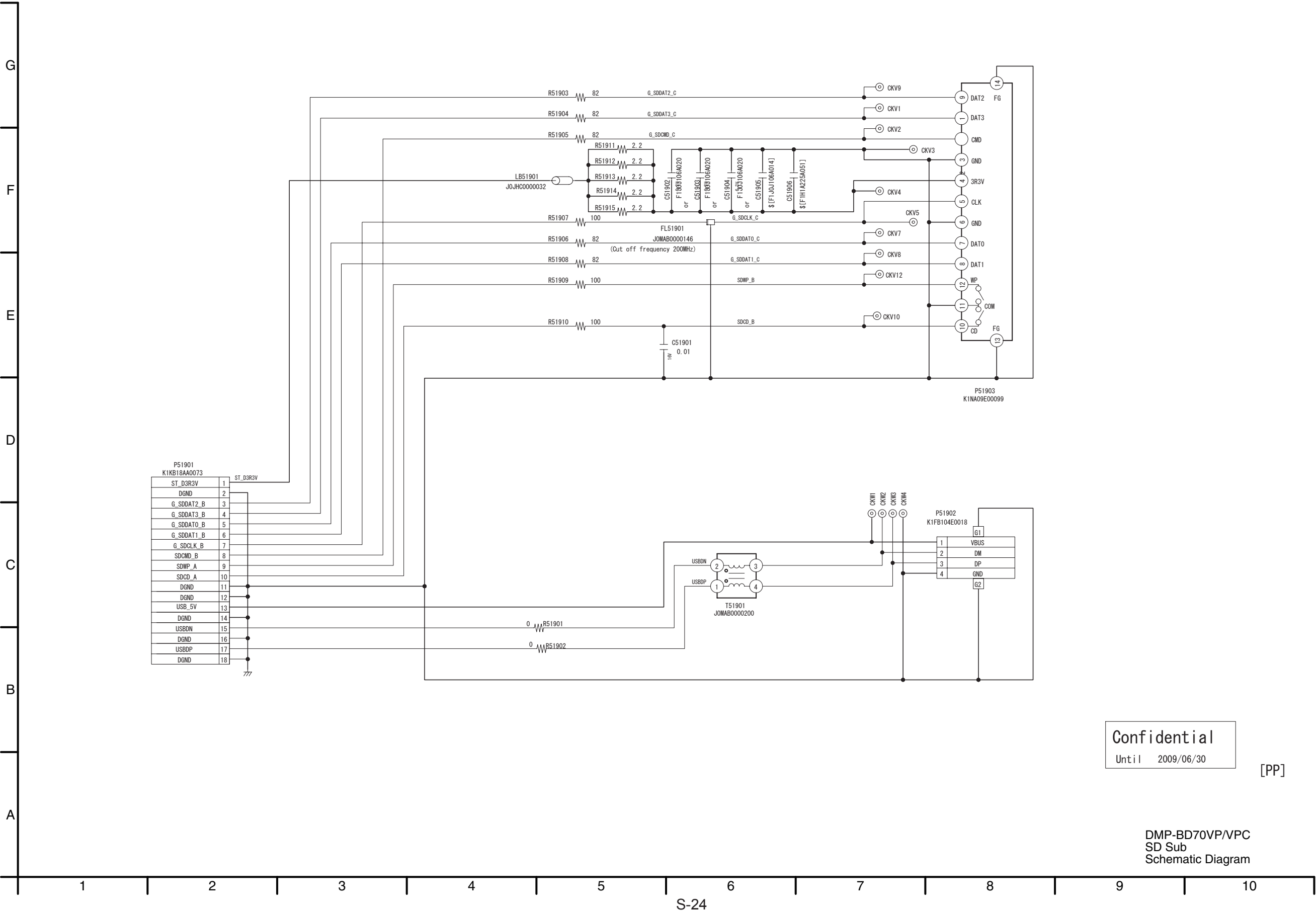
SD

DMP-BD70VP/VPC

Front R

Schematic Diagram

S4.9. SD Sub Schematic Diagram



Confidential
Until 2009/06/30

[PP]

DMP-BD70VP/VPC
SD Sub
Schematic Diagram

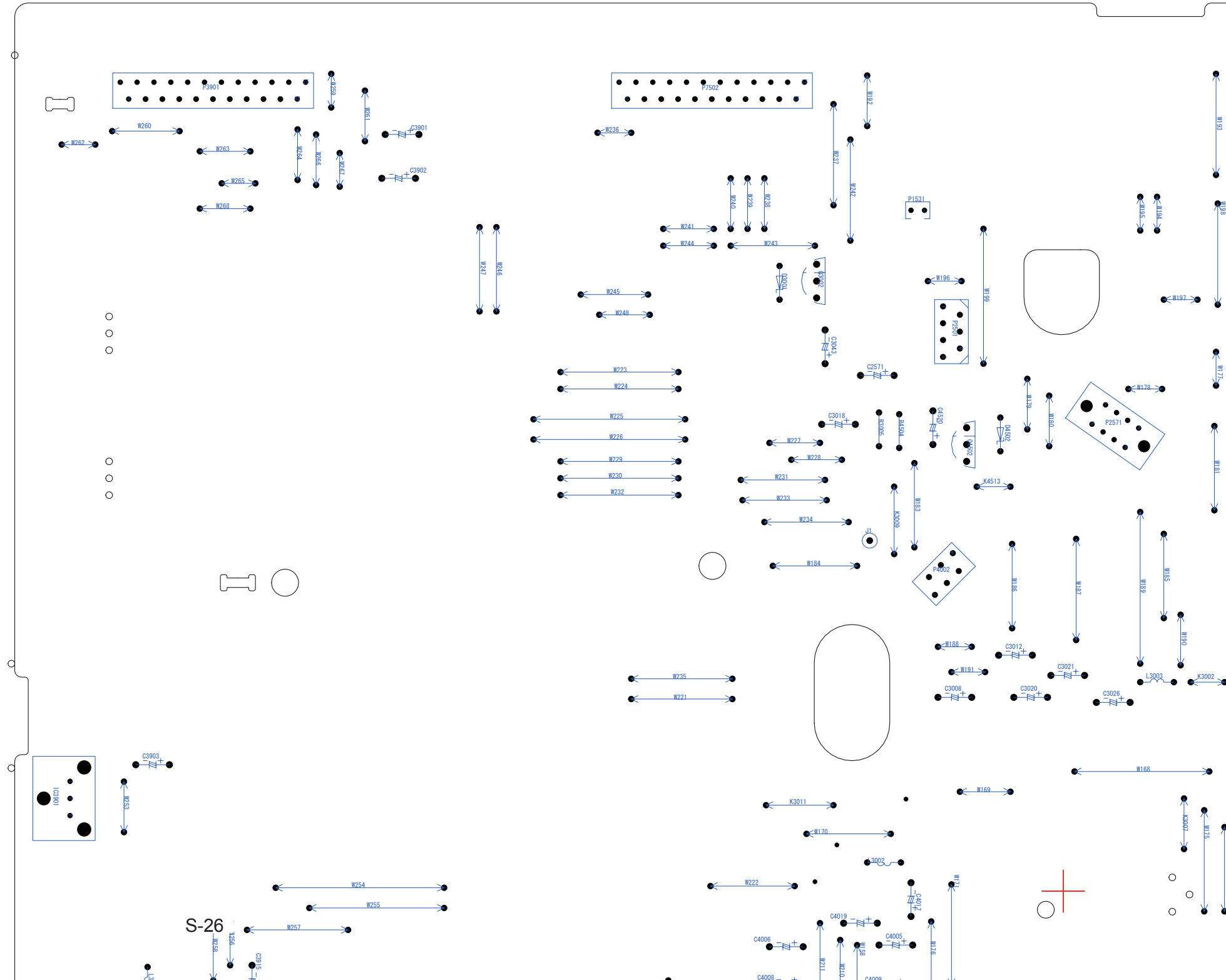
S5. Print Circuit Board

S5.1. Main P.C.B.

S5.1.1. Main P.C.B. (Component Side)

1/4	

DMP-BD70VP/VPC
Main P.C.B.
(Component Side)

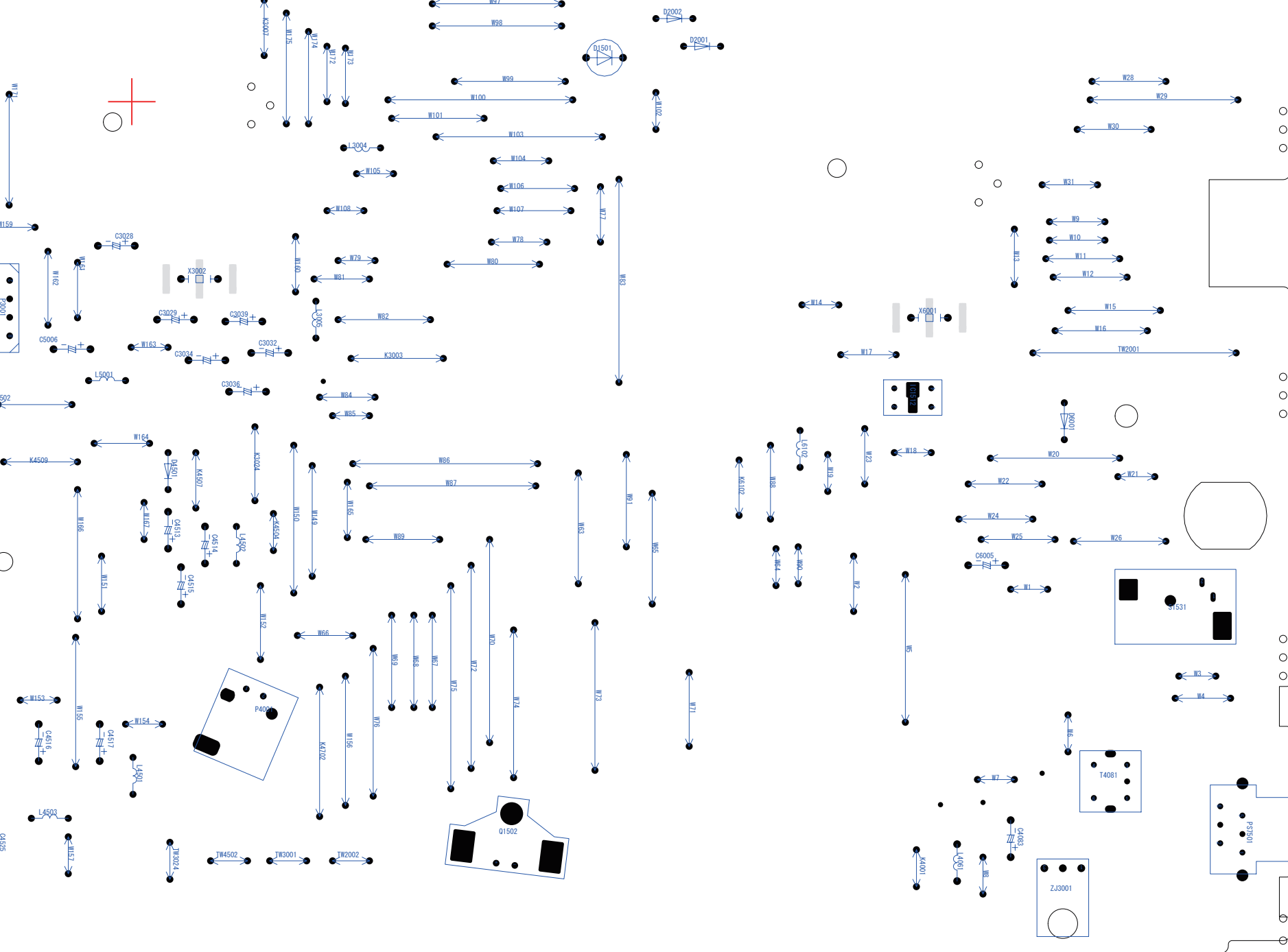




(Component Side)

3/4	

DMP-BD70VP/VP
Main P.C.B.
(Component Side)

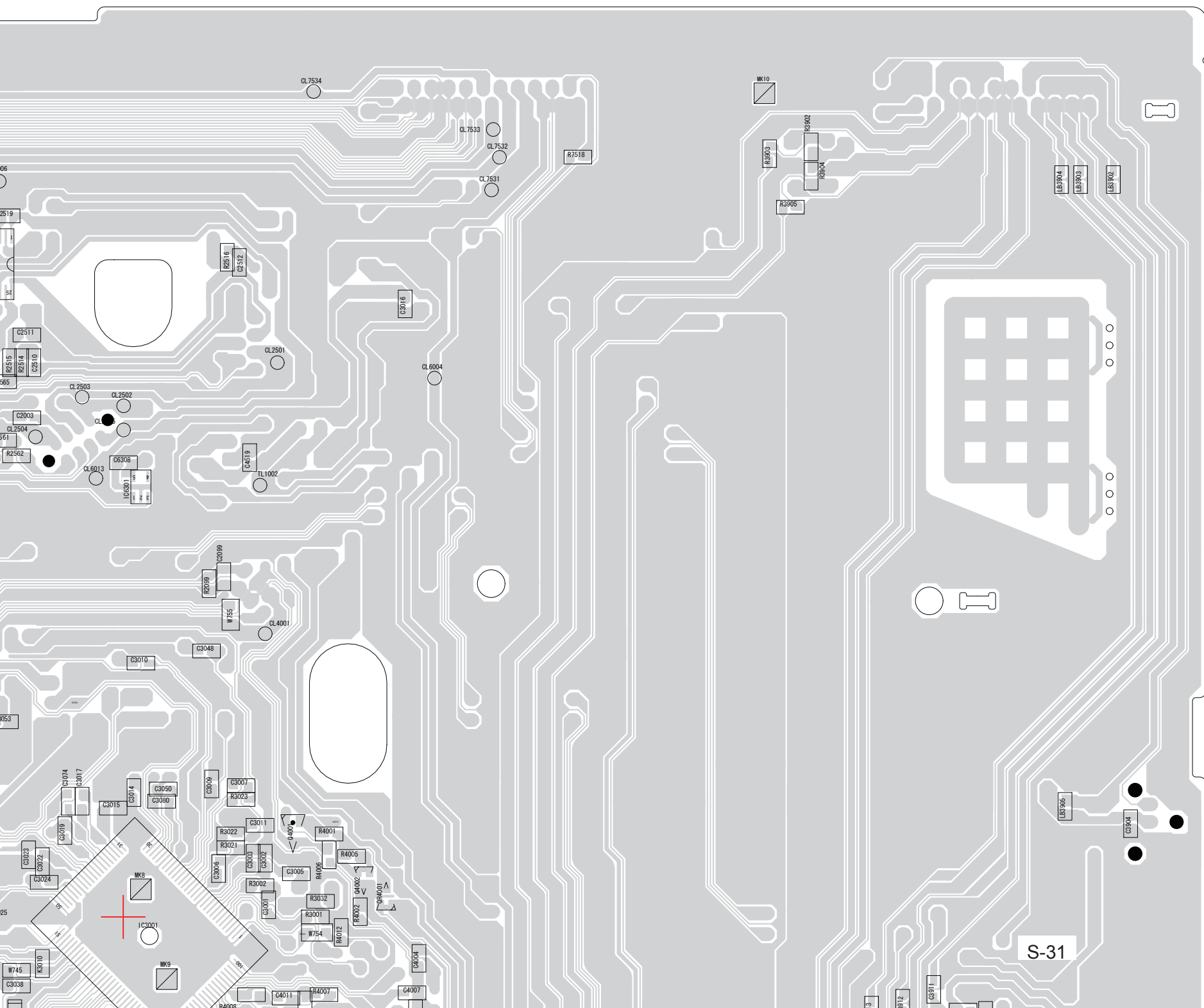


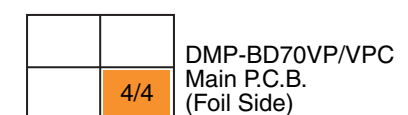
[illegible]

DMP-BD70VP/VPC
Main P.C.B.
(Foil Side)

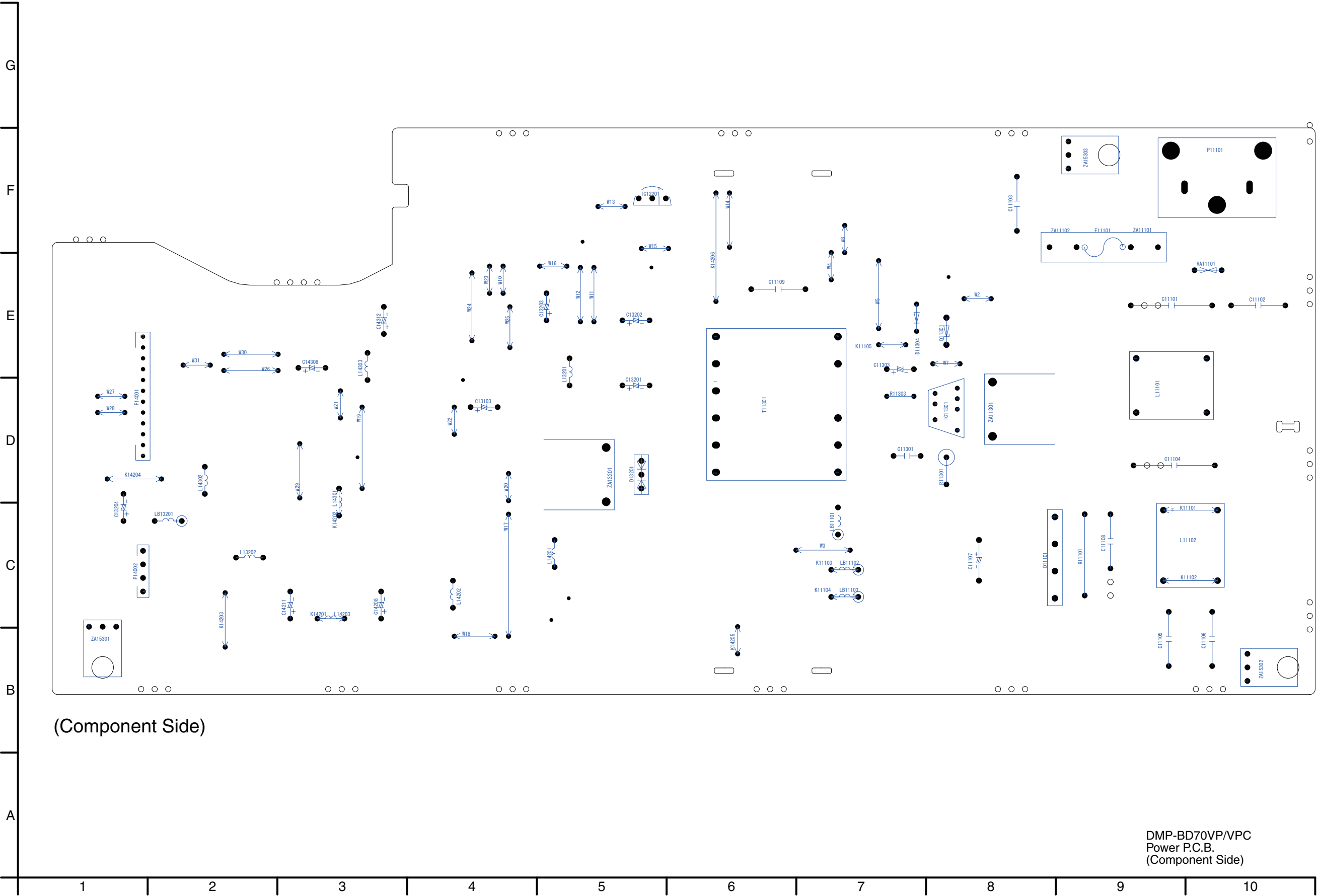


	2/4	DMP-BD70VP/VPC Main P.C.B. (Foil Side)

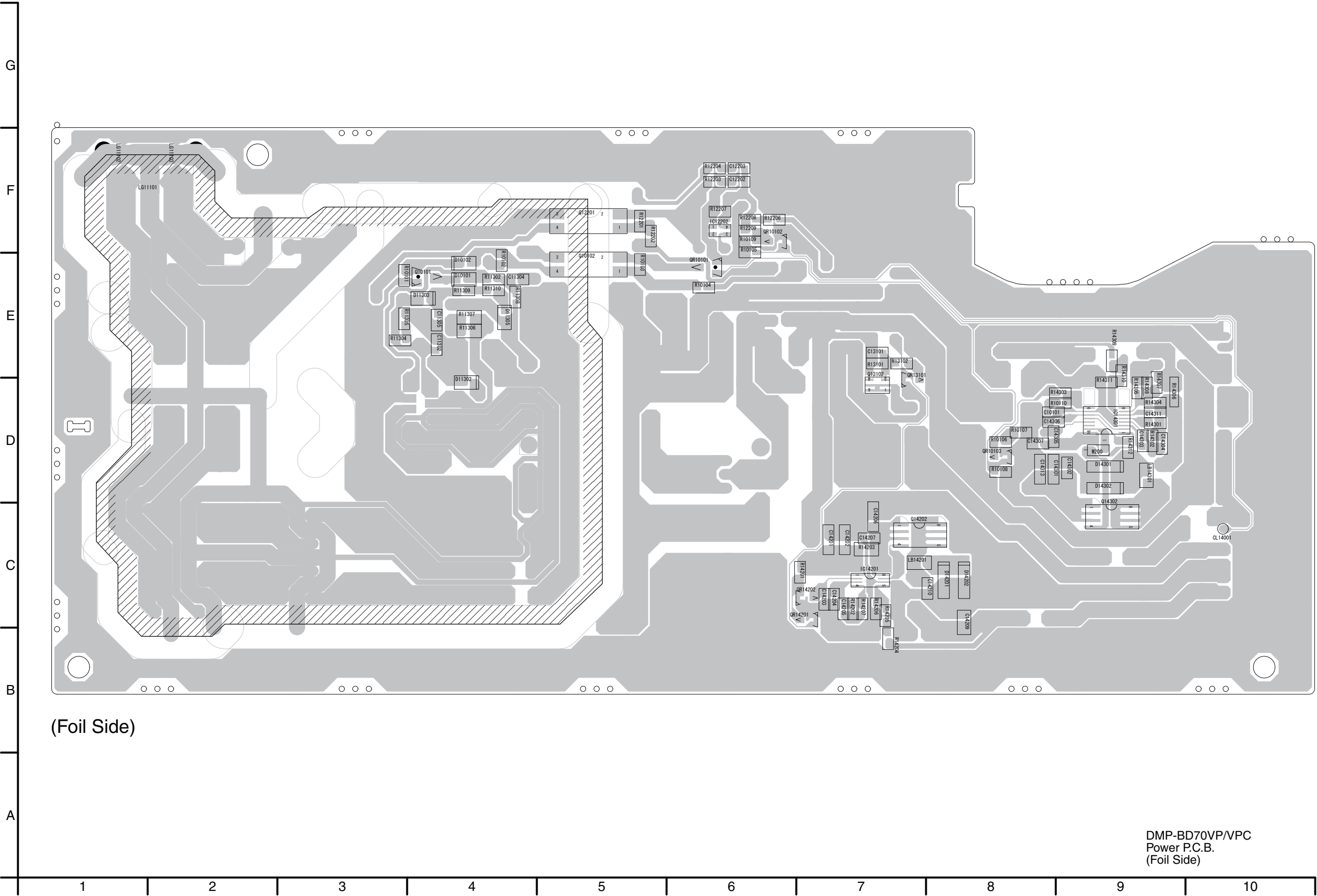




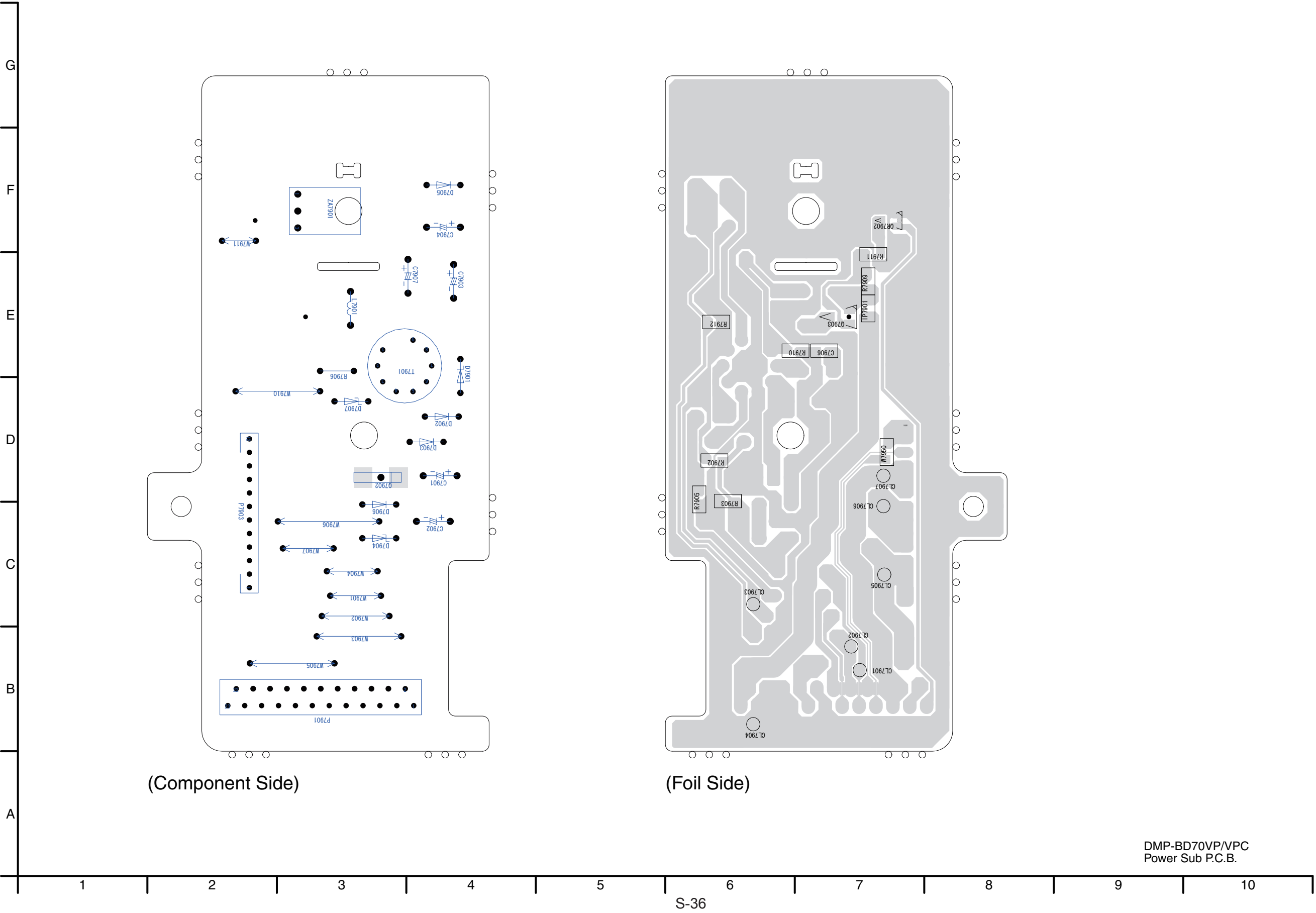
S5.2. Power P.C.B.
S5.2.1. Power P.C.B. (Component Side)



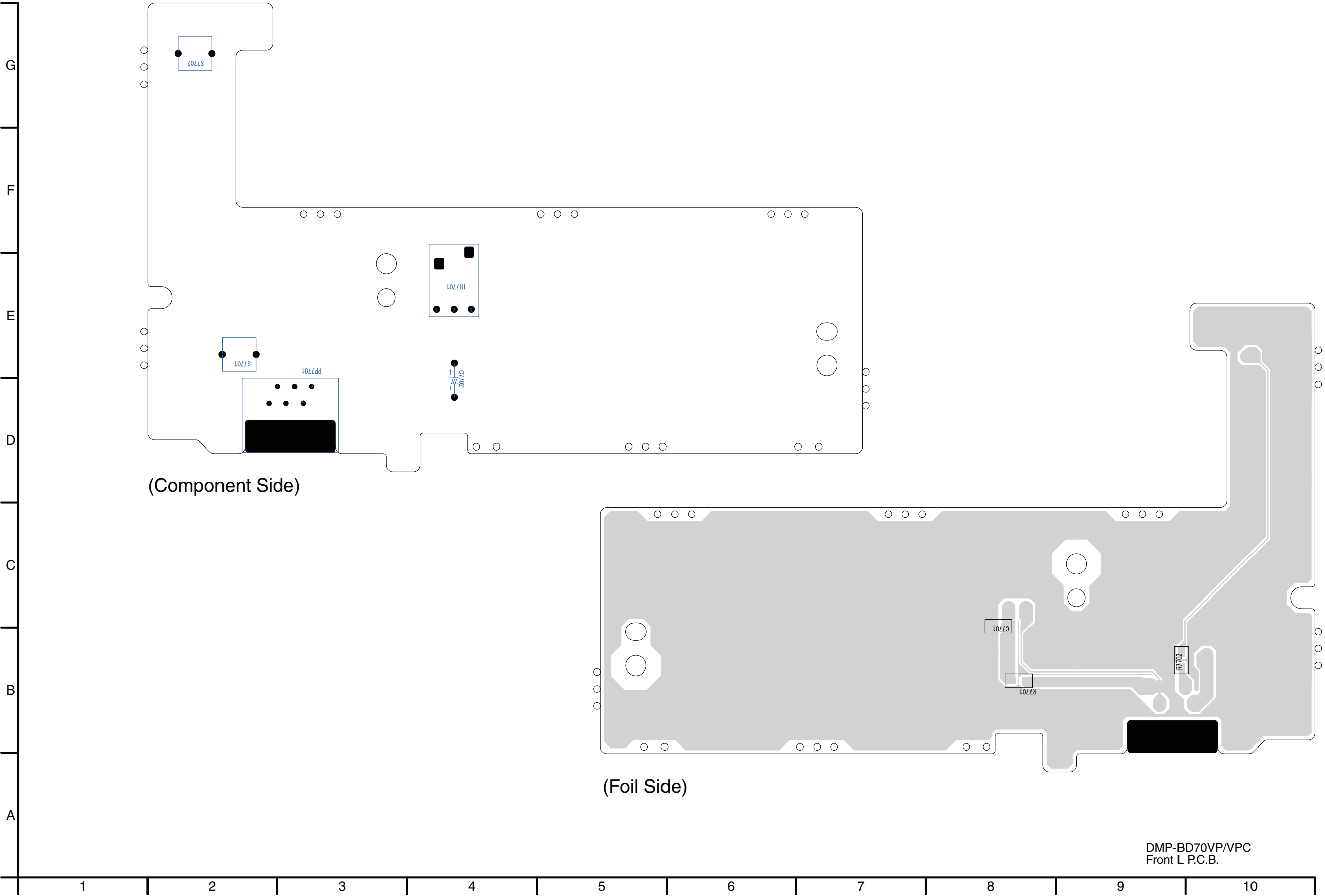
S5.2.2. Power P.C.B. (Foil Side)



S5.3. Power Sub P.C.B.

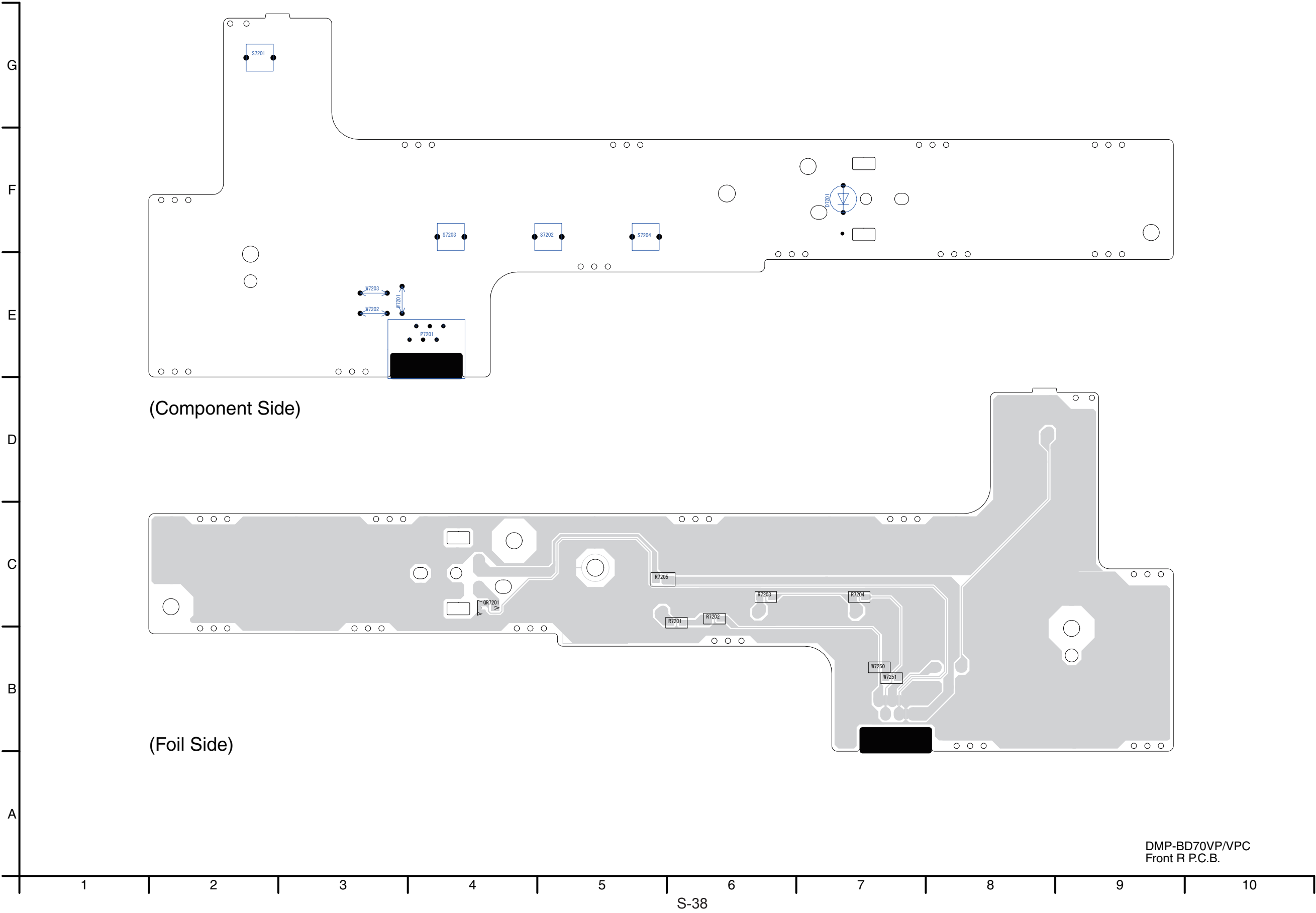


S5.4. Front L P.C.B.



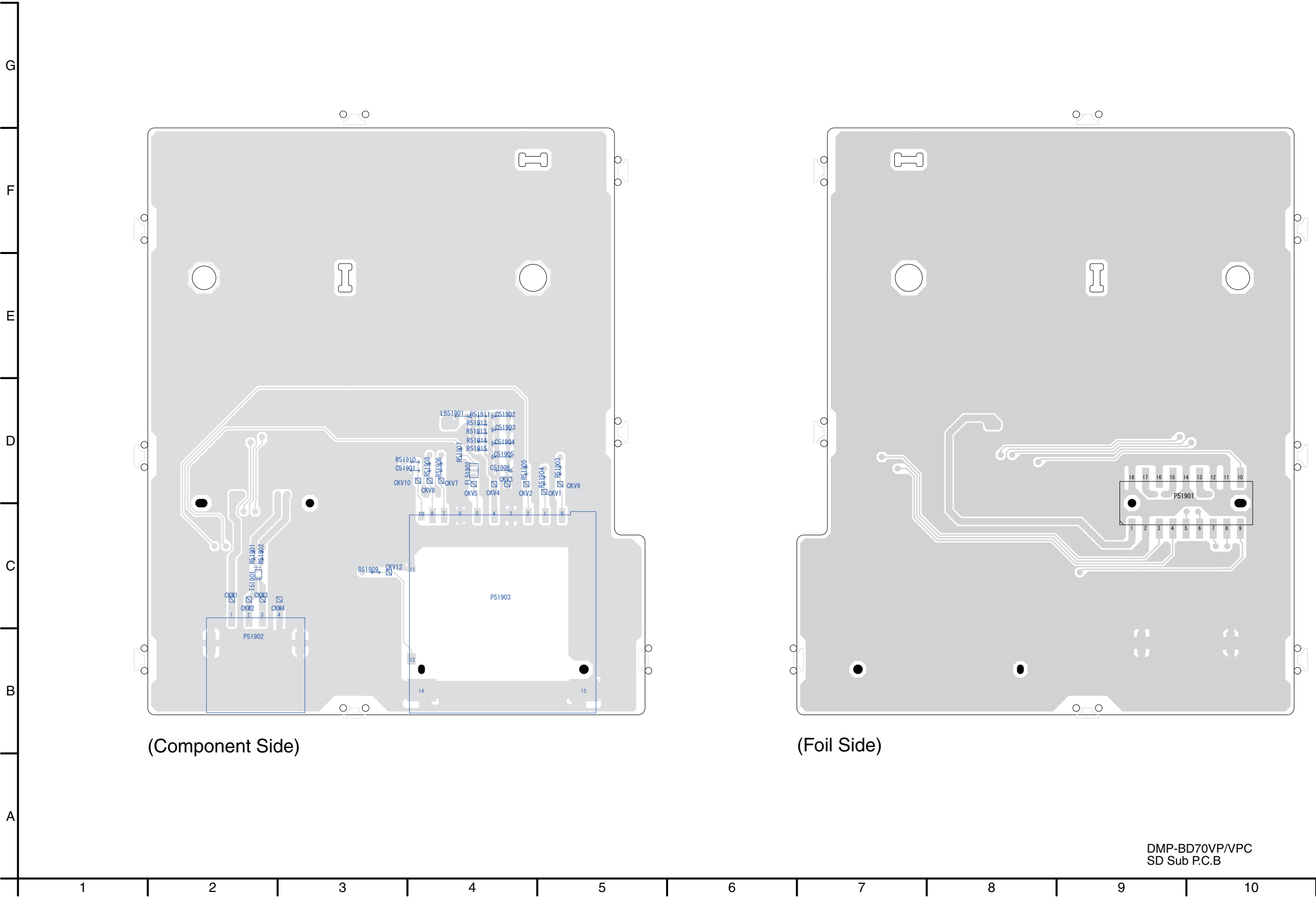
DMP-BD70VP/VPC
Front L P.C.B.

S5.5. Front R P.C.B.



DMP-BD70VP/VPC
Front R P.C.B.

S5.6. SD Sub P.C.B.



S6. Abbreviation

S6.1. BD Abbreviation Table

INITIAL/LOGO		ABBREVIATIONS
A	A0~UP	ADDRESS
	ACLK	AUDIO CLOCK
	AD0~UP	ADDRESS BUS
	ADATA	AUDIO PES PACKET DATA
	ALE	ADDRESS LATCH ENABLE
	AMUTE	AUDIO MUTE
	AREQ	AUDIO PES PACKET REQUEST
	ARF	AUDIO RF
	ASI	SERVO AMP INVERTED INPUT
	ASO	SERVO AMP OUTPUT
	ASYNC	AUDIO WORD DISTINCTION SYNC
B	BCK	BIT CLOCK (PCM)
	BCKIN	BIT CLOCK INPUT
	BDO	BLACK DROP OUT
	BLKCK	SUB CODE BLOCK CLOCK
	BOTTOM	CAP. FOR BOTTOM HOLD
	BYP	BYPATH
	BYTCK	BYTE CLOCK
C	CAV	CONSTANT ANGULAR VELOCITY
	CBDO	CAP. BLACK DROP OUT
	CD	COMPACT DISC
	CDSCK	CD SERIAL DATA CLOCK
	CDSRDATA	CD SERIAL DATA
	CDRF	CD RF (EFM) SIGNAL
	CDV	COMPACT DISC-VIDEO
	CHNDATA	CHANNEL DATA
	CKSL	SYSTEM CLOCK SELECT
	CLV	CONSTANT LINEAR VELOCITY
	COFTR	CAP. OFF TRACK
	CPA	CPU ADDRESS
	CPCS	CPU CHIP SELECT
	CPDT	CPU DATA
	CPH1~3	CLOCK PULSE SOURCE DRIVE
	CPUADR	CPU ADDRESS LATCH
	CPUADT	CPU ADDRESS DATA BUS
	CPUIRQ	CPU INTERRUPT REQUEST
	CPRD	CPU READ ENABLE
	CPV	GATE DRIVER CLOCK PULSE
	CPWR	CPU WRITE ENABLE
	CS	CHIP SELECT
	CSYNCIN	COMPOSITE SYNC IN
	CSYNCOUT	COMPOSITE SYNC OUT
D	DACCK	D/A CONVERTER CLOCK
	DEEMP	DE-EMPHASIS BIT ON/OFF
	DEMPH	DE-EMPHASIS SWITCHING
	DIG0~UP	FL DIGIT OUTPUT
	DIN	DATA INPUT
	DMSRCK	DM SERIAL DATA READ CLOCK

INITIAL/LOGO		ABBREVIATIONS
	DMUTE DO DOUT0~UP DRF DRPOUT DREQ DRESP DSC DSLIF DVD	DIGITAL MUTE CONTROL DROP OUT DATA OUTPUT DATA SLICE RF (BIAS) DROP OUT SIGNAL DATA REQUEST DATA RESPONSE DIGITAL SERVO CONTROLLER DATA SLICE LOOP FILTER DIGITAL VIDEO DISC
E	EC ECR ENCSEL ETMCLK ETSCLK	ERROR TORQUE CONTROL ERROR TORQUE CONTROL REFERENCE ENCODER SELECT EXTERNAL M CLOCK (81MHz/40.5MHz) EXTERNAL S CLOCK (54MHz)
F	FBAL FCLK FE FFI FEO FG FSC FSCK	FOCUS BALANCE FRAME CLOCK FOCUS ERROR FOCUS ERROR AMP INVERTED INPUT FOCUS ERROR AMP OUTPUT FREQUENCY GENERATOR FREQUENCY SUB CARRIER FS (384 OVER SAMPLING) CLOCK
G	GND	COMMON GROUNDING (EARTH)
H	HA0~UP HD0~UP HINT HRXW	HOST ADDRESS HOST DATA HOST INTERRUPT HOST READ/WRITE
I	IECOUT IPFRAG IREF ISEL	IEC958 FORMAT DATA OUTPUT INTERPOLATION FLAG I (CURRENT) REFERENCE INTERFACE MODE SELECT
L	LDON LPC LRCK	LASER DIODE CONTROL LASER POWER CONTROL L CH/R CH DISTINCTION CLOCK
M	MA0~UP MCK MCKI MCLK MDATA MDQ0~UP MDQM MLD MPEG	MEMORY ADDRESS MEMORY CLOCK MEMORY CLOCK INPUT MEMORY SERIAL COMMAND CLOCK MEMORY SERIAL COMMAND DATA MEMORY DATA INPUT/OUTPUT MEMORY DATA I/O MASK MEMORY SERIAL COMMAND LOAD MOVING PICTURE EXPERTS GROUP
O	ODC OEH OEV 1, 2 OFTR OSCI	OPTICAL DISC CONTROLLER SOURCE DRIVER OUTPUT ENABLE GATE DRIVER OUTPUT ENABLE OFF TRACKING OSCILLATOR INPUT

INITIAL/LOGO		ABBREVIATIONS
	OSCO OSD	OSCILLATOR OUTPUT ON SCREEN DISPLAY
P	P1~UP PCD PCK PDVD PEAK PLLCLK PLLOK PWMCTL PWMDA PWMOA, B	PORT CD TRACKING PHASE DIFFERENCE PLL CLOCK DVD TRACKING PHASE DIFFERENCE CAP. FOR PEAK HOLD CHANNEL PLL CLOCK PLL LOCK PWM OUTPUT CONTROL PULSE WAVE MOTOR DRIVE A PULSE WAVE MOTOR OUT A, B
R	RE RFENV RFO RS RSEL RST RSV	READ ENABLE RF ENVELOPE RF PHASE DIFFERENCE OUTPUT (CD-ROM) REGISTER SELECT RF POLARITY SELECT RESET RESERVE
S	SBI0, 1 SBO0 SBT0, 1 SCK SCKR SCL SCLK SDA SEG0~UP SELCLK SEN SIN1, 2 SOUT1, 2 SPDI SPDO SPEN SPRCLK SPWCLK SQCK SQCX SRDATA SRMADR SRMDT0~7 SS STAT STCLK STD0~UP STENABLE STH STSEL	SERIAL DATA INPUT SERIAL DATA OUTPUT SERIAL CLOCK SERIAL DATA CLOCK AUDIO SERIAL CLOCK RECEIVER SERIAL CLOCK SERIAL CLOCK SERIAL DATA FL SEGMENT OUTPUT SELECT CLOCK SERIAL PORT ENABLE SERIAL DATA IN SERIAL DATA OUT SERIAL PORT DATA INPUT SERIAL PORT DATA OUTPUT SERIAL PORT R/W ENABLE SERIAL PORT READ CLOCK SERIAL PORT WRITE CLOCK SUB CODE Q CLOCK SUB CODE Q DATA READ CLOCK SERIAL DATA SRAM ADDRESS BUS SRAM DATA BUS 0~7 START/STOP STATUS STREAM DATA CLOCK STREAM DATA STREAM DATA INPUT ENABLE SOURCE START PULSE STREAM DATA POLARITY SELECT

INITIAL/LOGO		ABBREVIATIONS
	STV STVALID SUBC SBCK SUBQ SYSCLK	GATE DRIVER SCAN START PULSE STREAM DATA VALIDITY SUB CODE SERIAL SUB CODE CLOCK SUB CODE Q DATA SYSTEM CLOCK
T	TE TIBAL TID TIN TIP TIS TPSN TPSO TPSP TRCRS TRON TRSON	TRACKING ERROR BALANCE CONTROL BALANCE OUTPUT 1 BALANCE INPUT BALANCE INPUT BALANCE OUTPUT 2 OP AMP INPUT OP AMP OUTPUT OP AMP INVERTED INPUT TRACK CROSS SIGNAL TRACKING ON TRAVERSE SERVO ON
V	VBLANK VCC VCDCONT VDD VFB VREF VSS	V BLANKING COLLECTOR POWER SUPPLY VOLTAGE VIDEO CD CONTROL (TRACKING BALANCE) DRAIN POWER SUPPLY VOLTAGE VIDEO FEED BACK VOLTAGE REFERENCE SOURCE POWER SUPPLY VOLTAGE
W	WAIT WDCK WEH WSR	BUS CYCLE WAIT WORD CLOCK WRITE ENABLE HIGH WORD SELECT RECEIVER
X	X XALE XAREQ XCDROM XCS XCSYNC XDS XHSYNCO XHINT XI XINT XMW XO XRE XSRMCE XSRMOE XSRMWE XVCS XVDS XVSYNCO	X' TAL X ADDRESS LATCH ENABLE X AUDIO DATA REQUEST X CD ROM CHIP SELECT X CHIP SELECT X COMPOSITE SYNC X DATA STROBE X HORIZONTAL SYNC OUTPUT XH INTERRUPT REQUEST X' TAL OSCILLATOR INPUT X INTERRUPT X MEMORY WRITE ENABLE X' TAL OSCILLATOR OUTPUT X READ ENABLE X SRAM CHIP ENABLE X SRAM OUTPUT ENABLE X SRAM WRITE ENABLE X V-DEC CHIP SELECT X V-DEC CONTROL BUS STROBE X VERTICAL SYNC OUTPUT

S6.2. VHS Abbreviation Table

INITIAL/LOGO		ABBREVIATIONS
A	A. COMP	AUDIO COMPONENT SIGNAL
	A. COMPO	AUDIO COMPONENT SIGNAL
	A. D.P [L]	AUDIO DUBBING PAUSE [L]
	A. D/L [L]	AUDIO DUBBING PAUSE [L]
	A. DEF [S]	AUDIO DEFEAT
	A. DEF [S] [L]	AUDIO DEFEAT
	A. DUB P [L]	AUDIO DUBBING PAUSE [L]
	A. DUB [H]	AUDIO DUBBING [H]
	A. ERASE	AUDIO ERASE
	A. H. SW	AUDIO HEAD SWITCHING PULSE
	A. HEAD [R]	AUDIO HEAD (REC)
	A. HEAD [W]	AUDIO HEAD (PLAY)
	A. IN [L]	AUDIO INPUT (L)
	A. IN [R]	AUDIO INPUT (R)
	A. MUT [H]	AUDIO MUTE [H]
	A. MUTE [H]	AUDIO MUTE [H]
	A. OUT [L]	AUDIO OUTPUT (L)
	A. OUT [R]	AUDIO OUTPUT (R)
	A. RF OUT	AUDIO RF SIGNAL OUTPUT
	A/VS/S. DATA	AV SW/SERIAL DATA
	AC ONLINE	AC ONLINE
	AC. O/EE. H	AC ONLINE/EE [H]
	AFC S C	AFC S CURVE
	AFC [S]	AFC S CURVE
	AFC. DEF	AFC DEFEAT
	ARFC OUT	AUDIO RF SIGNAL OUTPUT
	ART. V	ARTIFICIAL VERTICAL SYNC SIGNAL
	ART. V. MM	ARTIFICIAL VERTICAL SYNC SIGNAL MONO MULTI
	ART. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL [H]/NORMAL
	AT. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL
	ATSW/TEST/NOR/SE	TEST/NORMAL/SERVICE
	AUDIO IN [L]	AUDIO INPUT (L)
	AUDIO IN [R]	AUDIO INPUT (R)
	AUDIO OUT [L]	AUDIO OUTPUT (L)
	AUDIO OUT [R]	AUDIO OUTPUT (R)
	AUDIO SELECT [H]	AUDIO SELECT [H]
	AUDIO. L	AUDIO (L)
	AUDIO. R	AUDIO (R)
	AV CNT	AV CONTROL
	AV CTL	AV CONTROL
	AV CTL/S. CLK	AV CONTROL/SERIAL CLOCK
	AV. C.M.	AV CONTROL MODE
	AVCNT/METER. R	AV CONTROL/LEVEL METER (R)
	AVSW/METER. L	AV SW/LEVEL METER (L)
B	B MODE. H	B MODE [H]
	B.G.P	BURST GATE PULSE
	BACKUP 5V	BACK UP 5V
	BAND. U.E.	BAND U

INITIAL/LOGO		ABBREVIATIONS
	BANDVL. D BI/MI [L] BIL BIL [L] BIL. [H] BIL/M1 [L] BS CLOCK BS DATA BS LCH IN BS MIX [H] BS MON [H] BS MONI [H] BS RCH IN BS VIDEO BS VIDEO/BS1 BS [H] BS. LEVEL BS. M [H] BS/VTR [H] BUS CLK BUS LSN BUS TLK BUZZER	BAND VL BILINGUAL/MIX [L] BILINGUAL BILINGUAL [L] BILINGUAL [H] BILINGUAL [L] BS CLOCK BS DATA BS L CHANNEL INPUT BS MIX [H] BS MONITOR [H] BS MONITOR [H] BS R CHANNEL INPUT BS VIDEO SIGNAL BS VIDEO SIGNAL BS [H] BS LEVEL BS MONITOR H BS/VTR [H] BUS CLOCK BUS LISTEN BUS TALK BUZZER
C	CAP EC CAP M GND CAP. ET CAP. FG1 CAP. FG2 CAS. SW CCN CCP CHM CHP CINEM [L] CINEMA [L] CINEMA/MIX CKL CKS CL CLK CLK (C.G) CLOCK. IN CLP COL/B/W/NOR COLOR [H] CONV CS CTL GND CTL HEAD [+]	CAPSTAN TORQUE CONTROL CAPSTAN MOTOR GND CAPSTAN TORQUE CONTROL CAPSTAN FG1 PULSE CAPSTAN FG2 PULSE CASSETTE SW PLAYBACK CONTROL SIGNAL (-) PLAYBACK CONTROL SIGNAL (+) CONTROL SIGNAL (+) CONTROL SIGNAL (-) CINEMA [L] CINEMA [L] CINEMA/MIX RATCH LOCK SHIFT LOCK CLOCK CLOCK CLOCK CLOCK INPUT CLAMP COLOUR/BLACK & WHITE/NORMAL COLOUR [H] CONVERTOR CHIP SELECT CONTROL GND CONTROL HEAD (+)

INITIAL/LOGO		ABBREVIATIONS
	CTL HEAD [-] CTL [+] CTL [-] CUE BIAS CURRENT LIM CYL ET CYL GND	CONTROL HEAD (-) CONTROL HEAD (+) CONTROL HEAD (-) CUE BIAS CURRENT LIMMETER CYLINDER TORQUE CONTROL CYLINDER GND
D	D.F.M. REC [H] D. FM REC [L] D. GND D. REC [H] D4/S. LED D4/STILLED DAC [CLK] DAC/FSCS DAREC [H] DATA DECODER [L] DECODER [R] DEW DEW SNS DFMRE [H]	DELAIED FM RECORDING [H] DELAIED FM RECORDING [L] DIGITAL GND DELAYED RECORDING [H] D4/STILL LED D4/STILL LED TUNER DAC (CLOCK) TUNER DAC/FS CHIP SELECT DELAYED AUDIO RECORDING [H] DATA DECODER (L) DECODER (R) DEW DEW SENSOR DELAYED FM AUDIO RECORDING [H]
E	E. REC 5V EC ECR EDT TRIG [L] EDIT [H] EE [H] EE [H]/INS [M] EE. VV. TR EJECT. PO EJECT/VDET ENV. SEL ENVE. OUT ENVE. SEL ENV SELECT EP [H] EP/LP [H] EP/LP/SP EP/SS [H] EPROMCS EX. REC 5V	EXCEPT RECORDING 5V ERROR TORQUE CONTROL ERROR TORQUE CONTROL REFERENCE VOLTAGE EDIT TRIGGER [L] EDIT [H] EE [H] EE [H]/INSERT [M] EE/VV/TRICK PLAY EJECT POSITION EJECT/REVERSE SLOW LOCK ENVELOPE SELECT ENVELOPE OUTPUT ENVELOPE SELECT ENVELOPE SELECT LP [H] LP [H] LP/SP LP/SLOW/STILL/STOP [H] EPROM CHIP SELECT EXCEPT RECORDING 5V
F	FF/REW [L] FG1 IN FG2 IN FILTER ADJUSTMENT FLY ERASE [H] FLY ON [H] FLY. E [H]	FIRST FORWARD/REWIND [L] FG1 PULSE INPUT FG2 PULSE INPUT FILTER ADJUSTMENT FLYING ERASE HEAD ON [H] FLYING ERASE HEAD ON [H] FLYING ERASE HEAD ON [H]

INITIAL/LOGO		ABBREVIATIONS
	FM MUT [H] FM MUTE [H] FM OUT [L] FM OUT [R] FM PACK OUT [L] FM PACK OUT [R] FM/BS SEL [L] FM/BS SEL [R] FS. CLK FUL. E [H] FULL. E [H] FULL. E. 12V	FM AUDIO MUTE [H] FM AUDIO MUTE [H] FM OUTPUT (L) FM OUTPUT (R) FM PACK OUTPUT (L) FM PACK OUTPUT (R) FM/BS SELECT (L) FM/BS SELECT (R) FS CLOCK FULL ERASE HEAD ON [H] FULL ERASE HEAD ON [H] FULL ERASE 12V
G	GND [A] GND [TU] GND/N. SW. 12V	GND (ANALOG) GND (TUNER) GND/NON SW 12V
H	H. SYNC H. AMP. SW H. P <R> H. P <L> H. P GND H. P OUT [L] H. P OUT [R] H. SW HEAD PHONE [L] HEAD PHONE [R] HEAD SW HEATER [+] HEATER [-] HSS HTR [+] HTR [-]	HORIZONTAL SYNC HEAD AMP SW PULSE HEAD PHONE (R) HEAD PHONE (L) HEAD PHONE GND HEAD PHONE OUTPUT (L) HEAD PHONE OUTPUT (R) HEAD SW PULSE HEAD PHONE (L) HEAD PHONE (R) HEAD SW HEATER (+) HEATER (-) HORIZONTAL SYNC SIGNAL HEATER (+) HEATER (-)
I	I RFE ICL IF IN SELA1 IN SELA2 IN SELA3 INS L/R [L] INS. [H] INSEL A1 INSEL A2 INSERT INSERT [H] IO CS	REFERENCE CURRENT CONTROL AGC CIRCUIT INTERMEDIATE FREQUENCY INPUT SELECT A1 POSITION INPUT SELECT A2 POSITION INPUT SELECT A3 POSITION INSERT Lch/Rch [L] INSERT [H] INPUT SELECT A1 POSITION INPUT SELECT A2 POSITION INSERT INSERT [H] INPUT/OUTPUT CHIP SELECT
J	JOG1 JOG S3 LED/FOWRD JOG/F. LED JSB [H] JST. CLCK	JOG1 JOG LED/FORWARD LED JOG LED/FORWARD LED JSB [H] JUST CLOCK

INITIAL/LOGO		ABBREVIATIONS
	JST. CLK JST. CLOCK	JUST CLOCK JUST CLOCK
L	L. OUT L. CH [H] L. CH [L] LED (MAIN) LED (STEREO) LED (SUB) LED CKL LED CKS LED DATA LINE IN 1 [L] LINE IN 1 [R] LINE IN 2 [L] LINE IN 2 [R] LINE IN V LINE IN [L] LINE IN [R] LINE OUT [L] LINE OUT [R] LP [H] LPTRI [L] Lch/A. DUB	Lch OUTPUT Lch [H] Lch [L] LED (MAIN) LED (STEREO) LED (SUB) LED SERIAL CLOCK LED SERIAL CLOCK LED SERIAL DATA LINE INPUT 1 (L) LINE INPUT 1 (R) LINE INPUT 2 (L) LINE INPUT 2 (R) LINE INPUT VIDEO LINE INPUT (L) LINE INPUT (R) LINE OUTPUT (L) LINE OUTPUT (R) LP [H] LP TRICK PLAY [L] Lch/AUDIO DUBBING
M	M GND M REG MAIN OUT MAIN [L] MAIN/MONO MAX IN MES [H] MESE [H] MESE [L] METER 5V METER [L] METER [R] METER. L/AVS METER. R/AVC MI/BI [L] MIC GND MIC IN MIC IN [L] MIC IN [R] MIC [H] MIX [H] MIX [H]/CINEMA [L] MIX/CINE MIX/CINEMA [L] MN. H/M. L MN. H/MAI. L	MOTOR GND MOTOR REGULATOR MAIN OUTPUT MAIN [L] MAIN/MONAUURAL MAXIMAM INPUT MESECAM [H] MESECAM [H] MESECAM [L] LEVEL METER 5V LEVEL METER (L) LEVEL METER (R) LEVEL METER (L) LEVEL METER (R) MIX [H]/BILIGUAL MIC GND MIC INPUT MIC INPUT (L) MIC INPUT (R) MIC [H] MIX [H] MIX [H]/CINEMA SOUND [L] MIX [H]/CINEMA SOUND [L] MIX [H]/CINEMA SOUND [L] MONAURAL [H]/MAIN [L] MONAURAL [H]/MAIN [L]

INITIAL/LOGO		ABBREVIATIONS
	MN2/MES. L MODE SEL MODE SW MODE. S. IN MODE. S. OUT MONO [H] MONO [H]/MAIN [L] MONO2 [L] MONO2/MESE [FM(L)] MOTOR GND MUTE	MONAURAL 2/MESECAM [L] AUDIO MODE SELECT AUDIO MODE SW AUDIO MODE SELECT INPUT AUDIO MODE SELECT OUTPUT MONAURAL [H] MONAURAL [H]/MAIN [L] MONAURAL 2 MONAURAL 2/MESECAM (FM [L]) MOTOR GND MUTE
N	N. A. REC [L] N. SW 12V N. SW. 5. DET NICAM NICAM [L] NOL [H] NOR/SOFT [H] NORMAL [H] NR BIAS NTSC [L]	NORMAL AUDIO RECORDING NON SW 12V NON SW 5V DETECT NICAM NICAM [L] PAL [H]/4.43 NTSC M/3.58 NTSC [L] NORMAL/SOFT TAPE PLAY [H] NORMAL [H] NR BIAS NTSC [L]
O	OCH OUT	CONTROL AGC CIRCUIT OUTPUT
P	P-OFF [H] P-OFF [L] P. FAIL P. OFF [H] P. OFF [L] PAL [H] PAL [L]/NTSC [H] PB ADJ OUT PB OUT PB. H PFG PHOTSN +B PICT. CNT PLAY LED/RVS LED PLAY. PO PLAY/R. LED PLY/DEW POWER OFF [L] PREROLL [H] PWRFAIL	POWER OFF [H] POWER OFF [L] POWER FAILURE DETECT POWER OFF [H] POWER OFF [L] PAL [H] PAL [L]/NTSC [H] PLAYBACK ADJUST OUTPUT PLAYBACK OUTPUT PLAYBACK [H] PG/FG PHOTO SENSOR +B PICTURE CONTROL PLAY LED/REVERSE LED PLAY POSITION PLAY LED/REVERSE LED PLAY/DEW [H] POWER OFF [L] PREROLL [H] POWER FAILURE DETECT
R	R. CH [H] R. CH [L] R. ST R/S/F RCH [H] REC 12V	Rch [H] Rch [L] RESET REVERSE [H]/STOP [M]/FORWARD [L] Rch [H] RECORDING 12V

INITIAL/LOGO		ABBREVIATIONS
	REC CHROMA REC H REC IN REC OUT [L] REC START REC VR [C] REC VR [L] REC VR [R] REC Y REC [H] REC. C REC. Y REC/EE CTL REEL-T REEL-S REGULATOR FILTER RESET REV M F/R REV M V1 REV M V2 REV MOTOR F/R REV MOTOR V1 REV MOTOR V2 REV MOTOR [+] REV MOTOR [-] REV. M. GND RF. CHROMA RF OUT RF Y RF. Y. IN RF. Y. OUT ROTAR. SW ROTARY RST RST [L] Rch/INST	RECORDING CHROMINANCE SIGNAL RECORDING [H] RECORDING INPUT RECORDING OUTPUT [L] RECORDING START RECORDING VOLUME (COMMON) RECORDING VOLUME (L) RECORDING VOLUME (R) RECORDING LUMINANCE SIGNAL RECORDING [H] RECORDING CHROMINANCE SIGNAL RECORDING LUMINANCE SIGNAL RECORDING/EE CONTROL REEL PULSE (TAKE-UP) REEL PULSE (SUPPLY) REGULATOR FILTER RESET REVIEW MOTOR FORWARD/REVERSE REVIEW MOTOR V1 REVIEW MOTOR V2 REVIEW MOTOR FORWARD/REVERSE REVIEW MOTOR V1 REVIEW MOTOR V2 REVIEW MOTOR (+) REVIEW MOTOR (+) REVIEW MOTOR GND RF CHROMINANCE SIGNAL RF OUTPUT RF LUMINANCE SIGNAL RF LUMINANCE SIGNAL INPUT RF LUMINANCE SIGNAL OUTPUT ROTARY SW ROTARY SW RESET RESET [L] Rch/INSERT
S	S IN S OUT S-PHOTO S-RL. PLS S. CLK S. CLK/AV S. DATA S. DATA/A S. PHOTO S. TAB [L] S/P/N SC IN SC OUT	SERIAL DATA INPUT SERIAL DATA OUTPUT SUPPLY PHOTO TRANSISTOR SUPPLY REEL PULSE SERIAL CLOCK SERIAL CLOCK/AV SERIAL DATA SERIAL DATA SUPPLY PHOTO TRANSISTOR SAFETY TAB SW ON [L] SECAM/PAL/NTSC SERIAL CLOCK INPUT SERIAL CLOCK OUTPUT

INITIAL/LOGO		ABBREVIATIONS
	SCK SELECT SEL OUT [L] SEL OUT [R] SHUTTLE 1 SIF SLMUT [H] SLNID [+] SLNID [-] SLW TR. MM SLW TR. REF SNS. GND SOFT [H] SOFT [H]/NORMAL SOLENOID ON [L] SP [H] SP/L/SLP SSS [L] STEREO LED STEREO [H] STEREO [L] STOP. PO STOP/5V STOP1/TAPE SEL STOP1/PAL:ST STOP2. PO STOP2/S-TAB STREO [H] SUB BIAS SUB. SW SVHS CAS [L] SW. 5. DET SYNC [L] SYSCON 5V SYSTEM	SERIAL CLOCK SELECT SELECT OUTPUT (L) SELECT OUTPUT (R) SHUTTLE 1 SOUND INTERMEDIATE FREQUENCY INPUT SELECT MUTE [H] SOLENOID (+) SOLENOID (-) SLOW TRACKING MONO MULTI SLOW TRACKING REFERENCE VOLTAGE SENSOR GND SOFT TAPE PLAY [H] SOFT TAPE PLAY [H]/NORMAL [H] SOLENOID ON [L] SP [H] SP/LP SLOW/STILL/STOP STEREO LED STEREO [H] STEREO [L] STOP POSITION STOP POSITION/5V STOP1 POSITION/TAPE SELECT STOP1 POSITION/PAL STOP 2 POSITION STOP 2 POSITION/SAFETY TAB SW STEREO [H] SUB BIAS SUB SW S-VHS CASSETTE [L] SW 5V DETECT SYNC [L] SYSTEM CONTROL 5V SYSTEM SW
T	T-PHOTO T-RL. PLS T. BUSCLK T. BUSLSN T. BUSTLK T. END [L] T. PHOTO TAPE END [L] TAPE END [L]/CAM TEST TPZ TRIC [L] TRICK [L] TRK. ENV TU. AUDIO	TAKE-UP PHOTO TRANSISTOR TAKE-UP REEL PULSE TIMER BUS CLOCK TIMER BUS LISTEN TIMER BUS TALK TAPE END [L] TAKE-UP PHOTO TRANSISTOR TAPE END [L] TAPE END [L]/CAMERA PAUSE TEST MODE TRAPEZOIDAL WAVE CIRCUIT TRIC PLAY [L] TRIC PLAY [L] AUTO TRACKING ENVELOPE DETECT TUNER AUDIO

INITIAL/LOGO		ABBREVIATIONS
	TU. GND TU. V. IN TU. VIDEO TUN NOR IN TUN R TUN. AUDIO IN TUNER 12V TUNER L TUNER V IN TUNER [L] TUNER [N] TUNER [R] TUNER. 12 TUOFF [H] TV. AUDIO TV/VTR TXTON [L]	TUNER GND TUNER VIDEO SIGNAL INPUT TUNER VIDEO TUNER NORMAL INPUT TUNER AUDIO (R) TUNER AUDIO INPUT TUNER 12V TUNER AUDIO (L) TUNER VIDEO SIGNAL INPUT TUNER AUDIO (L) TUNER AUDIO (NORMAL) TUNER AUDIO (R) TUNER 12V TUNER OFF [H] TV AUDIO TV/VTR TEXT ON [L]
U	U. REG45V UNREG UNREG19V	UNREGULATOR 45V UNREGULATOR UNREGULATOR 19V
V	V. REF V. EE [H] V. EE [L] VCO REF VD. IN VD. OUT VIDEO EE [L] VIDEO IN VIDEO OUT VM VM DOWN [L] VSS VTR [H] VTR. 12V	REFERENCE VOLTAGE VIDEO EE [H] VIDEO EE [L] REFERENCE OSCILLATER VIDEO SIGNAL INPUT VIDEO SIGNAL OUTPUT VIDEO EE [L] VIDEO SIGNAL INPUT VIDEO SIGNAL OUTPUT MOTOR VOLTAGE MOTOR VOLTAGE DOWN [L] VERTICAL SYNC SIGNAL VTR [H] VTR 12V
X	X IN X OUT	OSCILLATOR INPUT OSCILLATOR OUTPUT

S7. Replacement Parts List

Note: ☐ 1.* Be sure to make your orders of replacement parts according to this list.

2. IMPORTANT SAFETY NOTICE

- ☐ Components identified with the mark $\triangle$ have the special characteristics for safety.
- ☐ When replacing any of these components, use only the same type.

3. ☐ Unless otherwise specified,

- ☐ All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICRO-FARADS (uf), P=uuF.

4. ☐ The marking (RTL) indicates the retention time is limited for this item. After the discontinuation of this assembly in production, it will no longer be available.

E.S.D. standards for Electrostatically Sensitive Devices, refer to “PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES” section.

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
##	VEP06G45A	MAIN P.C.B.	1	(RTL)	C3901	F2A1E470A205	25V 47U	1	
C2001	ECJ1VC1H330J	50V 33P	1		C3902	F2A1E470A205	25V 47U	1	
C2002	F1H1A105A028	10V 1U	1		C3903	F2A0J470A599	6.3V 47U	1	
C2003	F1H1A105A028	10V 1U	1		C3904	F1H1C104A071	16V 0.1U	1	
C2051	F1J0J106A014	6.3V 10U	1		C3905	F2A0J470A245	6.3V 47U	1	
C2052	F1J0J106A014	6.3V 10U	1		C3906	F1H1C104A071	16V 0.1U	1	
C2053	F2A1C1000021	16V 10U	1		C3907	F1H1C104A071	16V 0.1U	1	
C2054	ECJ1VB1H392K	50V 3900P	1		C3908	F2A0J220A245	6.3V 22U	1	
C2055	F1H1C104A071	16V 0.1U	1		C3909	F1H1A105A028	10V 1U	1	
C2056	F1J0J106A014	6.3V 10U	1		C3910	F1H1A105A028	10V 1U	1	
C2099	ECJ1VC1H681J	50V 680P	1		C3911	F1H1A105A028	10V 1U	1	
C2501	F1H1C104A071	16V 0.1U	1		C3912	F1H1A105A028	10V 1U	1	
C2502	F2A0J101A825	6.3V 100U	1		C3913	F1H1A105A028	10V 1U	1	
C2504	ECJ1VB1E223K	25V 0.022U	1		C3914	ECJ1VB1H103K	50V 0.01U	1	
C2505	ECJ1VB1E223K	25V 0.022U	1		C3915	F2A0J220A245	6.3V 22U	1	
C2506	ECJ1VB1A224K	10V 0.22U	1		C3918	F2A1E470A205	25V 47U	1	
C2507	ECJ1VB1H102K	50V 1000P	1		C3919	F2A1E470A205	25V 47U	1	
C2508	ECJ1VB1H182K	50V 1800P	1		C3920	F2A0J102A247	6.3V 1000U	1	
C2509	F2A1C220B100	16V 22U	1		C3921	F2A0J102A247	6.3V 1000U	1	
C2510	F1H1C104A071	16V 0.1U	1		C3922	F2A0J102A247	6.3V 1000U	1	
C2511	F1H1C104A071	16V 0.1U	1		C3923	F2A0J102A247	6.3V 1000U	1	
C2512	F1H1C104A071	16V 0.1U	1		C3924	ECJ1VC1H102J	50V 1000P	1	
C2513	F1H1A105A028	10V 1U	1		C3925	ECJ1VC1H102J	50V 1000P	1	
C2515	ECJ1VB1H103K	50V 0.01U	1		C3926	ECJ1VB1H103K	50V 0.01U	1	
C2518	ECJ1VB1H103K	50V 0.01U	1		C4001	ECJ1VB1H333K	50V 0.033U	1	
C2519	ECJ1VB1H103K	50V 0.01U	1		C4004	ECJ1VB1H182K	50V 1800P	1	
C2551	ECJ1VB1C473K	16V 0.047U	1		C4005	F2A0J220A878	6.3V 22U	1	
C2552	ECJ1VB1C683K	16V 0.068U	1		C4006	F2A1H4R7B033	50V 4.7U	1	
C2561	ECJ1VB1C683K	16V 0.068U	1		C4007	ECJ1VB1H182K	50V 1800P	1	
C2562	ECJ1VB1C473K	16V 0.047U	1		C4008	F2A1H3R3B032	50V 3.3U	1	
C2571	F2A1C2210095	16V 220U	1		C4009	F2A0J330A824	6.3V 33U	1	
C3001	ECJ1VC1H151J	50V 150P	1		C4011	ECJ1VB1H103K	50V 0.01U	1	
C3002	F1H1C104A071	16V 0.1U	1		C4012	F2A1H4R7B033	50V 4.7U	1	
C3003	F1H1C104A071	16V 0.1U	1		C4013	ECJ1VB1H103K	50V 0.01U	1	
C3005	ECJ1VC1H220J	50V 22P	1		C4017	F2A1C100B099	16V 10U	1	
C3006	F1H1C104A071	16V 0.1U	1		C4019	F2A1C100B099	16V 10U	1	
C3007	F1H1C104A071	16V 0.1U	1		C4081	ECJ1VB1E223K	25V 0.022U	1	
C3008	F2A1H4R7B033	50V 4.7U	1		C4082	ECJ1VC1H471J	50V 470P	1	
C3009	F1H1C104A071	16V 0.1U	1		C4083	F2A1A470A863	10V 47P	1	
C3010	F1H1A105A028	10V 1U	1		C4084	ECJ1VB1H182K	50V 1800P	1	
C3011	F1H1C104A071	16V 0.1U	1		C4501	ECJ1VB1C473K	16V 0.047U	1	
C3012	F2A0J470A824	6.3V 47U	1		C4502	F2A1C100B099	16V 10U	1	
C3014	F1H1C104A071	16V 0.1U	1		C4503	F2A1C100B099	16V 10U	1	
C3015	F1H1A105A028	10V 1U	1		C4504	F2A1C100B099	16V 10U	1	
C3016	F1H1C104A071	16V 0.1U	1		C4505	F2A0J330A824	6.3V 33U	1	
C3017	F1H1C104A071	16V 0.1U	1		C4506	F2A1C100B099	16V 10U	1	
C3018	F2A1C100B099	16V 10U	1		C4507	F2A0J220A878	6.3V 22U	1	
C3019	F1H1C104A071	16V 0.1U	1		C4508	ECJ1VB1C333K	16V 0.033U	1	
C3020	F2A1H3R3B032	50V 3.3U	1		C4509	ECJ1VB1H103K	50V 0.01U	1	
C3021	F2A1V100A824	35V 10U	1		C4510	ECJ1VB1H103K	50V 0.01U	1	
C3022	F1H1C104A071	16V 0.1U	1		C4511	F1H1C104A071	16V 0.1U	1	
C3023	ECJ1VB1H103K	50V 0.01U	1		C4512	ECJ1VB1A224K	10V 0.22U	1	
C3024	ECJ1VC1H331J	50V 330P	1		C4513	F2A0J220A878	6.3V 22U	1	
C3025	ECJ1VB1H103K	50V 0.01U	1		C4514	F2A1C100B099	16V 10U	1	
C3028	F2A1H4R7B033	50V 4.7U	1		C4515	F2A0J330A824	6.3V 33U	1	
C3029	F2A1HR47B032	50V 47U	1		C4516	F2A1C100B099	16V 10U	1	
C3030	ECJ1VB1E223K	25V 0.022U	1		C4517	F2A0J220A878	6.3V 22U	1	
C3031	ECJ1VB1C333K	16V 0.033U	1		C4518	ECJ1VB1H103K	50V 0.01U	1	
C3032	F2A1H4R7B033	50V 4.7U	1		C4519	F1H1C104A071	16V 0.1U	1	
C3033	F1H1C104A071	16V 0.1U	1		C4520	F2A1C220B100	16V 22U	1	
C3034	F2A1H2R2B032	50V 2.2U	1		C4521	F2A1C100B099	16V 10U	1	
C3035	ECJ1VB1H472K	50V 4700P	1		C4522	ECJ1VB1C473K	16V 0.047U	1	
C3036	F2A0J470A824	6.3V 47U	1		C4523	F2A1C220B100	16V 22U	1	
C3037	F1H1C104A071	16V 0.1U	1		C4524	F1H1C104A071	16V 0.1U	1	
C3038	ECJ1VC1H040C	50V 4P	1		C4525	F2A1C101B102	16V 100U	1	
C3039	F2A1H1R0B032	50V 1U	1		C4526	F2A1C100B099	16V 10U	1	
C3040	ECJ1VB1H103K	50V 0.01U	1		C4527	F2A1C100B099	16V 10U	1	
C3041	ECJ1VB1H103K	50V 0.01U	1		C4528	F2A1C100B099	16V 10U	1	
C3043	F2A1C100B099	16V 10U	1		C4534	ECJ1VB1H153K	50V 0.015U	1	
C3044	F1H1C104A071	16V 0.1U	1		C4535	ECJ1VB1H153K	50V 0.015U	1	
C3048	ECJ1VB1H103K	50V 0.01U	1		C4537	ECJ2VC1H560G	50V 56P	1	
C3050	F1H1C104A071	16V 0.1U	1		C4538	ECJ1VB1H103K	50V 0.01U	1	
C3053	F1H1C104A071	16V 0.1U	1		C5001	ECJ1VB1H103K	50V 0.01U	1	
C3074	F1H1C104A071	16V 0.1U	1		C5002	ECJ1VB1H103K	50V 0.01U	1	
C3080	ECJ1VB1H103K	50V 0.01U	1		C5003	ECJ1VB1H103K	50V 0.01U	1	
					C5004	ECJ1VB1H103K	50V 0.01U	1	
					C5005	F1H1C104A071	16V 0.1U	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C5006	F2A0J101A825	6.3V 100U	1		LB3901	ERJ6GEY0R00V	1/8W 0	1	
C5007	F1H1C104A071	16V 0.1U	1		LB3902	ERJ3GEY0R00V	1/10W 0	1	
C5008	F1H1A105A028	10V 1U	1		LB3903	ERJ3GEY0R00V	1/10W 0	1	
C6001	ECJ1VC1H180J	50V 18P	1		LB3904	ERJ3GEY0R00V	1/10W 0	1	
C6002	ECJ1VC1H180J	50V 18P	1		LB3905	J0JBC0000033	COIL	1	
C6005	F2A1H3R3B032	50V 3.3U	1						
C6008	ECJ1VC1H471J	50V 470P	1		P1531	K1KA02A00375	CONNECTOR(2P)	1	
C6009	ECJ1VB1H103K	50V 0.01U	1		P2501	K1MN07A00019	CONNECTOR(7P)	1	
C6010	ECJ1VC1H120J	50V 12P	1		P2571	K1KA08A00355	CONNECTOR(8P)	1	
C6011	ECJ1VC1H120J	50V 12P	1		P3001	K1MN09A00022	CONNECTOR(9P)	1	
C6012	F1H1C104A071	16V 0.1U	1		P3002	K1KA08A00031	CONNECTOR(8P)	1	
C6014	ECJ1VB1H102K	50V 1000P	1		P3901	K1KY23AA0606	CONNECTOR(23P)	1	
C6015	ECJ1VB1C333K	16V 0.033U	1		P3902	K1KA03AA0180	CONNECTOR(3P)	1	
C6016	ECJ1VB1H102K	50V 1000P	1		P4001	K1KB02A00035	CONNECTOR(2P)	1	
C6018	ECJ1VB1H103K	50V 0.01U	1		P4002	K1MN06A00033	CONNECTOR(6P)	1	
C6019	ECJ2VB1E104K	25V 0.1U	1		P7501	K1KY15AA0606	CONNECTOR(15P)	1	
C6020	ECJ1VB1H102K	50V 1000P	1		P7502	K1KY23AA0606	CONNECTOR(23P)	1	
C6101	ECJ1VB1H103K	50V 0.01U	1						
C6102	F1H1A105A028	10V 1U	1		PS7501	K1KB06B00033	CONNECTOR(6P)	1	
C6103	ECJ1VC1H561J	50V 560P	1						
C6104	ECJ1VB1H103K	50V 0.01U	1		Q1501	PNA2602M01VT	TRANSISTOR	1	
C6308	F1H1A105A028	10V 1U	1		Q1502	PNA2602M01VT	TRANSISTOR	1	
C7502	F1H1C104A071	16V 0.1U	1		Q3001	2SD1819K0L	TRANSISTOR	1	
C7503	ECJ1VF1H104Z	50V 0.1U	1		Q3002	B1AAGD000016	TRANSISTOR	1	
C7504	F1H1C104A071	16V 0.1U	1		Q3004	2SD1819K0L	TRANSISTOR	1	
C7505	ECJ1VB1H103K	50V 0.01U	1		Q3901	2SD0601A0L	TRANSISTOR	1	
C7506	F1H1A105A028	10V 1U	1		Q3902	2SD0601A0L	TRANSISTOR	1	
C7507	F1H1A105A028	10V 1U	1		Q4001	2SD114900L	TRANSISTOR	1	
					Q4002	2SD1819K0L	TRANSISTOR	1	
D1501	B3EA00000072	LED	1		Q4082	2SD0602ARL	TRANSISTOR	1	
D2001	B0AACK000004	DIODE	1		Q4084	2SB0710A0L	TRANSISTOR	1	
D2002	B0AACK000004	DIODE	1		Q4501	2SB0710A0L	TRANSISTOR	1	
D2502	MAZ4160NMF	DIODE	1		Q4502	B1AAGD000016	TRANSISTOR	1	
D3001	MAZ4056NHF	DIODE	1		Q7501	B1CFHC000003	TRANSISTOR	1	
D3901	MA3J142D0L	DIODE	1		Q7502	B1ABGC000011	TRANSISTOR	1	
D4501	B0AACK000004	DIODE	1		Q7503	2SD1819K0L	TRANSISTOR	1	
D4502	MAZ4056NHF	DIODE	1		Q7504	2SB0710A0L	TRANSISTOR	1	
D6001	B0AACK000004	DIODE	1						
					QR4001	UNR51A1J0L	TRANSISTOR	1	
DP7501	A2BD00000194	DISPLAY TUBE	1		QR4082	UNR52A3J0L	TRANSISTOR	1	
					QR4501	UNR52A1J0L	TRANSISTOR	1	
IC1511	B3NAA0000117	IC	1		QR4502	UNR5113J0L	TRANSISTOR	1	
IC1512	B3NAA0000117	IC	1		QR4503	UNR5216J0L	TRANSISTOR	1	
IC2001	C0CBDC000052	IC	1		QR4504	UNR5216J0L	TRANSISTOR	1	
IC2501	C1AB00001767	IC	1		QR7501	UNR51A3J0L	TRANSISTOR	1	
IC3001	C1AB00002083	IC	1		QR7502	UNR52A3J0L	TRANSISTOR	1	
IC3901	B3ZA00000020	IC	1		QR7503	UNR52A3J0L	TRANSISTOR	1	
IC3902	C1AB00003097	IC	1						
IC4501	AN3656NFBPBV	IC	1		R1501	ERJ3GEYJ273V	1/10W 27K	1	
IC6001	C2CBHF000473	IC	1		R1502	ERJ3GEYJ273V	1/10W 27K	1	
IC6301	C0CBDC000052	IC	1		R1503	ERDS2TJ151T	1/4W 150	1	
IC7502	C0HBB0000061	IC	1		R1511	ERJ3GEYJ273V	1/10W 27K	1	
IC7503	C0CBBD000008	IC	1		R1512	ERJ3GEYJ273V	1/10W 27K	1	
					R1513	ERJ6GEYJ121V	1/8W 120	1	
J1	VEE0U97-1	WIRE	1		R2001	ERJ3GEYJ392V	1/10W 3.9K	1	
					R2002	ERJ3GEYJ105V	1/10W 1M	1	
JK3901	K2HA609B0014	JACK,AV OUT	1		R2099	ERJ3GEYJ682V	1/10W 6.8K	1	
					R2501	ERJ6GEYJ1R2V	1/8W 1.2	1	
K3010	ERJ3GEY0R00V	1/10W 0	1		R2502	ERJ6GEYJ1R5V	1/8W 1.5	1	
K4081	ERJ3GEY0R00V	1/10W 0	1		R2503	ERDS2TJ822T	1/4W 8.2K	1	
K4506	ERJ3GEY0R00V	1/10W 0	1		R2514	ERJ3GEYJ221V	1/10W 220	1	
K6101	ERJ3GEY0R00V	1/10W 0	1		R2515	ERJ3GEYJ221V	1/10W 220	1	
K6103	ERJ3GEY0R00V	1/10W 0	1		R2516	ERJ3GEYJ221V	1/10W 220	1	
					R2520	ERJ3GEYJ183V	1/10W 18K	1	
L3002	G0C271JA0019	COIL 270UH	1		R2521	ERJ3GEYJ102V	1/10W 1K	1	
L3003	G0C270JA0019	COIL 27UH	1		R2551	ERJ3GEYJ103V	1/10W 10K	1	
L3004	G0C680JA0019	COIL 68UH	1		R2552	ERJ3GEYJ103V	1/10W 10K	1	
L3005	G0C270JA0019	COIL 27UH	1		R2561	ERJ3GEYJ102V	1/10W 1K	1	
L3006	G1C120JA0036	COIL 12UH	1		R2562	ERJ3GEYJ473V	1/10W 47K	1	
L3901	G0C220JA0019	COIL 22UH	1		R2563	ERJ3GEYJ102V	1/10W 1K	1	
L3902	G0C220JA0019	COIL 22UH	1		R2564	ERJ3GEYJ101V	1/10W 100	1	
L4061	G0C221KA00065	COIL 220UH	1		R2565	ERJ3GEYJ101V	1/10W 100	1	
L4501	G0C1R2J00004	COIL 1.2UH	1		R3001	ERJ3GEYJ152V	1/10W 1.5K	1	
L4502	G0C391JA0019	COIL 390UH	1		R3002	ERJ3GEYJ622V	1/10W 6.2K	1	
L4503	G0C101JA0019	COIL 100UH	1		R3003	ERJ3GEYJ332V	1/10W 3.3K	1	
L5001	G0C680JA0019	COIL 68UH	1		R3004	ERJ3GEYJ332V	1/10W 3.3K	1	
					R3005	ERDS2TJ471T	1/4W 470	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R3006	ERJ3GEYJ750V	1/10W 75	1		R6020	ERJ3GEYJ221V	1/10W 220	1	
R3007	ERJ3GEYJ750V	1/10W 75	1		R6021	ERJ3GEYJ101V	1/10W 100	1	
R3009	ERJ3GEYJ153V	1/10W 15K	1		R6023	ERJ3GEYJ221V	1/10W 220	1	
R3013	ERJ3GEYJ103V	1/10W 10K	1		R6027	ERJ3GEYJ103V	1/10W 10K	1	
R3014	ERJ3GEYJ102V	1/10W 1K	1		R6029	ERJ3GEYJ221V	1/10W 220	1	
R3017	ERJ3GEYJ102V	1/10W 1K	1		R6101	ERJ3GEYJ105V	1/10W 1M	1	
R3021	ERJ3GEYJ222V	1/10W 2.2K	1		R6102	ERJ3GEYJ471V	1/10W 470	1	
R3022	ERJ3GEYJ332V	1/10W 3.3K	1		R6104	ERJ3GEYJ103V	1/10W 10K	1	
R3023	ERJ3GEYJ152V	1/10W 1.5K	1		R7501	ERJ3GEYJ103V	1/10W 10K	1	
R3030	ERJ3GEYJ685V	1/10W 6.8M	1		R7502	ERJ3GEYJ103V	1/10W 10K	1	
R3031	ERJ3GEYJ331V	1/10W 330	1		R7503	ERJ3GEYJ103V	1/10W 10K	1	
R3032	ERJ3GEYJ392V	1/10W 3.9K	1		R7504	ERJ3GEYJ103V	1/10W 10K	1	
R3035	ERJ3GEYJ222V	1/10W 2.2K	1		R7505	ERJ3GEYJ472V	1/10W 4.7K	1	
R3902	ERJ3GEYJ622V	1/10W 6.2K	1		R7506	ERJ3GEYJ103V	1/10W 10K	1	
R3903	ERJ3GEYJ392V	1/10W 3.9K	1		R7509	ERJ3GEYJ101V	1/10W 100	1	
R3904	ERJ3GEYJ622V	1/10W 6.2K	1		R7510	ERJ3GEYJ101V	1/10W 100	1	
R3905	ERJ3GEYJ392V	1/10W 3.9K	1		R7511	ERJ3GEYJ101V	1/10W 100	1	
R3906	ERJ3GEY0R00V	1/10W 0	1		R7512	ERJ3GEYJ104V	1/10W 100K	1	
R3907	ERJ3GEY0R00V	1/10W 0	1		R7513	ERJ3GEYJ103V	1/10W 10K	1	
R3909	ERJ3GEYJ473V	1/10W 47K	1		R7514	ERJ3GEYJ683V	1/10W 68K	1	
R3910	ERJ3GEYJ473V	1/10W 47K	1		R7515	ERJ3GEYJ272V	1/10W 2.7K	1	
R3911	ERJ3GEYJ821V	1/10W 820	1		R7516	ERJ3GEYJ562V	1/10W 5.6K	1	
R3912	ERJ3GEYJ821V	1/10W 820	1		R7517	ERDS2TJ2R7T	1/4W 2.7	1	
R3913	ERJ3GEYJ821V	1/10W 820	1		R7518	ERJ3GEY0R00V	1/10W 0	1	
R3914	ERJ3GEYJ821V	1/10W 820	1						
R3915	ERJ3GEYF750V	1/10W 75	1		S1531	K0C111A00006	SWITCH,SAFETY TAB	1	
R3916	ERJ3GEYF750V	1/10W 75	1		S1532	K0ZZ000000598	SWITCH,MODE	1	
R3917	ERJ3GEYJ750V	1/10W 75	1						
R3918	ERJ3GEYJ750V	1/10W 75	1		T4081	G2A472C00003	TRANSFORMER	1	
R3919	ERJ3GEYJ221V	1/10W 220	1						
R3920	ERJ3GEYJ221V	1/10W 220	1		W701	ERJ3GEY0R00V	1/10W 0	1	
R4001	ERJ3GEYJ102V	1/10W 1K	1		W702	ERJ3GEY0R00V	1/10W 0	1	
R4003	ERJ3GEYJ153V	1/10W 15K	1		W703	ERJ6GEY0R00V	1/8W 0	1	
R4004	ERJ3GEYJ271V	1/10W 270	1		W704	ERJ6GEY0R00V	1/8W 0	1	
R4005	ERJ3GEYJ102V	1/10W 1K	1		W705	ERJ3GEY0R00V	1/10W 0	1	
R4006	ERJ3GEYJ153V	1/10W 15K	1		W706	ERJ8GEY0R00V	1/4W 0	1	
R4007	ERJ3GEYJ103V	1/10W 10K	1		W707	ERJ8GEY0R00V	1/4W 0	1	
R4008	ERJ3GEYJ334V	1/10W 330K	1		W708	ERJ8GEY0R00V	1/4W 0	1	
R4009	ERJ3GEY0R00V	1/10W 0	1		W709	ERJ8GEY0R00V	1/4W 0	1	
R4011	ERJ3GEYJ153V	1/10W 15K	1		W710	ERJ8GEY0R00V	1/4W 0	1	
R4012	ERJ3GEYJ223V	1/10W 22K	1		W711	ERJ8GEY0R00V	1/4W 0	1	
R4081	ERJ3GEYJ103V	1/10W 10K	1		W712	ERJ8GEY0R00V	1/4W 0	1	
R4082	ERJ3GEYJ332V	1/10W 3.3K	1		W713	ERJ6GEY0R00V	1/8W 0	1	
R4086	ERJ3GEYJ222V	1/10W 2.2K	1		W714	ERJ6GEY0R00V	1/8W 0	1	
R4087	ERJ3GEYJ222V	1/10W 2.2K	1		W715	ERJ3GEY0R00V	1/10W 0	1	
R4500	ERJ3GEYJ102V	1/10W 1K	1		W716	ERJ3GEY0R00V	1/10W 0	1	
R4501	ERJ3GEYJ563V	1/10W 56K	1		W717	ERJ3GEY0R00V	1/10W 0	1	
R4502	ERJ3GEYJ682V	1/10W 6.8K	1		W718	ERJ3GEY0R00V	1/10W 0	1	
R4503	ERJ3GEYJ471V	1/10W 470	1		W719	ERJ3GEY0R00V	1/10W 0	1	
R4504	ERDS2TJ821T	1/4W 820	1		W720	ERJ3GEY0R00V	1/10W 0	1	
R4505	ERJ3GEYJ682V	1/10W 6.8K	1		W721	ERJ3GEY0R00V	1/10W 0	1	
R4506	ERJ3GEYJ471V	1/10W 470	1		W722	ERJ3GEY0R00V	1/10W 0	1	
R4507	ERJ3GEYJ472V	1/10W 4.7K	1		W723	ERJ3GEY0R00V	1/10W 0	1	
R4508	ERJ3GEYJ472V	1/10W 4.7K	1		W724	ERJ8GEY0R00V	1/4W 0	1	
R4513	ERJ3GEYJ472V	1/10W 4.7K	1		W725	ERJ6GEY0R00V	1/8W 0	1	
R4515	ERJ3GEYJ563V	1/10W 56K	1		W726	ERJ8GEY0R00V	1/4W 0	1	
R4520	ERJ3GEYJ472V	1/10W 4.7K	1		W727	ERJ6GEY0R00V	1/8W 0	1	
R4521	ERJ3GEYJ511V	1/10W 510	1		W728	ERJ8GEY0R00V	1/4W 0	1	
R4522	ERJ3GEYJ511V	1/10W 510	1		W729	ERJ8GEY0R00V	1/4W 0	1	
R4525	ERJ3GEYJ102V	1/10W 1K	1		W730	ERJ3GEY0R00V	1/10W 0	1	
R4526	ERJ3GEYJ243V	1/10W 24K	1		W731	ERJ3GEY0R00V	1/10W 0	1	
R4527	ERJ3GEYJ682V	1/10W 6.8K	1		W732	ERJ3GEY0R00V	1/10W 0	1	
R4529	ERJ3GEYJ681V	1/10W 680	1		W733	ERJ3GEY0R00V	1/10W 0	1	
R4534	ERJ3GEYJ124V	1/10W 120K	1		W734	ERJ3GEY0R00V	1/10W 0	1	
R4538	ERJ3GEYJ393V	1/10W 39K	1		W735	ERJ6GEY0R00V	1/8W 0	1	
R4539	ERJ3GEYJ102V	1/10W 1K	1		W736	ERJ3GEY0R00V	1/10W 0	1	
R4540	ERJ3GEYJ102V	1/10W 1K	1		W737	ERJ3GEY0R00V	1/10W 0	1	
R6001	ERJ3GEYJ102V	1/10W 1K	1		W738	ERJ6GEY0R00V	1/8W 0	1	
R6002	ERJ3GEYJ102V	1/10W 1K	1		W739	ERJ3GEY0R00V	1/10W 0	1	
R6003	ERJ3GEYJ473V	1/10W 47K	1		W740	ERJ3GEY0R00V	1/10W 0	1	
R6004	ERJ3GEYJ103V	1/10W 10K	1		W741	ERJ6GEY0R00V	1/8W 0	1	
R6005	ERJ3GEYJ104V	1/10W 100K	1		W742	ERJ6GEY0R00V	1/8W 0	1	
R6006	ERJ3GEYJ183V	1/10W 18K	1		W743	ERJ6GEY0R00V	1/8W 0	1	
R6008	ERJ3GEYJ222V	1/10W 2.2K	1		W744	ERJ3GEY0R00V	1/10W 0	1	
R6009	ERJ3GEYJ223V	1/10W 22K	1		W745	ERJ3GEY0R00V	1/10W 0	1	
R6010	ERJ3GEYJ684V	1/10W 680K	1		W746	ERJ3GEY0R00V	1/10W 0	1	
R6017	ERJ3GEYJ222V	1/10W 2.2K	1		W747	ERJ3GEY0R00V	1/10W 0	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
W748	ERJ3GEY0R00V	1/10W 0	1		IC14201	C0DBAZ00132	IC	1	
W749	ERJ3GEY0R00V	1/10W 0	1		IC14301	C0DBAYY00475	IC	1	
W750	ERJ6GEY0R00V	1/8W 0	1						
W751	ERJ3GEY0R00V	1/10W 0	1		△ L11101	G0B103GA0023	COIL	1	
W752	ERJ3GEY0R00V	1/10W 0	1		△ L11102	G0B103GA0023	COIL	1	
W753	ERJ3GEY0R00V	1/10W 0	1		L13201	G0A100H00025	COIL 10UH	1	
W754	ERJ6GEY0R00V	1/8W 0	1		L13202	G0A100H00025	COIL 10UH	1	
W755	ERJ6GEY0R00V	1/8W 0	1		L14201	G0C100K00043	COIL 10UH	1	
					L14202	G0A100ZA0045	COIL	1	
X3002	H0D357400067	OSCILLATOR	1		L14203	G0C100K00043	COIL 10UH	1	
X6001	H0A120500008	CRYSTAL OSCILLATOR	1		L14302	G0A100ZA0045	COIL	1	
					L14303	G0C100K00043	COIL 10UH	1	
ZB1501	VMD5470	SPACER	1		LB11101	J0JKB0000003	COIL	1	
ZB1502	VMD5470	SPACER	1		LB11102	J0JKB0000003	COIL	1	
ZB7501	RMN0894A	HOLDER	1		LB11103	J0JKB0000003	COIL	1	
ZB7502	RMN0895	HOLDER	1		LB13201	J0JKB0000003	COIL	1	
					LB14201	J0JHC0000048	FILTER	1	
ZJ3001	K9Z200001279	EARTH PLATE	1		LB14301	J0JHC0000048	FILTER	1	
##	VEP01A22A	POWER P.C.B.	1	(RTL)	△ P11101	K2AB2B000011	CONNECTOR(2P)	1	
△ C11104	ECQU2A683MLC	0.068U	1		P14001	K1KA12AA0194	CONNECTOR(12P)	1	
△ C11105	F1B2G1020002	400V 1000P	1		P14002	K1KA04AA0180	CONNECTOR(4P)	1	
△ C11106	F1B2G1020002	400V 1000P	1						
C11107	F2B2E2210011	250V 220U	1		Q10101	B1ABDF000033	TRANSISTOR	1	
△ C11109	F1B2G2220001	400V 2200P	1		△ Q10102	B3PBA0000454	TRANSISTOR	1	
C11301	F1B3A681A009	1000V 680P	1		△ Q12201	B3PBA0000454	TRANSISTOR	1	
C11302	ECJ1VB1H102K	50V 1000P	1		Q13102	B1DHDD000022	TRANSISTOR	1	
C11303	F2A1E1010103	25V 0.01U	1		Q14202	B1DHED000008	TRANSISTOR	1	
C11304	ECJ1VC1H101J	50V 100P	1		Q14302	B1DHED000008	TRANSISTOR	1	
C11305	F1H1H222A798	50V 2200P	1						
C12202	F1H1C104A071	16V 0.1U	1		QR10101	B1GBCFNN0043	TRANSISTOR	1	
C12203	F1H1C104A071	16V 0.1U	1		QR13101	UNR52A3J0L	TRANSISTOR	1	
C13101	F1H1A105A028	10V 1U	1		QR14201	UNR52A3J0L	TRANSISTOR	1	
C13103	F2A1C3300040	16V 33P	1		QR14202	UNR52A3J0L	TRANSISTOR	1	
C13201	F2A1C1520021	16V 1500U	1						
C13202	F2A1C1520021	16V 1500U	1		R10101	ERJ3GEYJ104V	1/10W 100K	1	
C13203	F2A1C8210008	16V 820U	1		R10102	ERJ3GEYJ104V	1/10W 100K	1	
C13204	F2A1C3300040	16V 33P	1		R10104	ERJ3GEYJ562V	1/10W 5.6K	1	
C14201	F1K1C106A062	16V 10U	1		R10106	ERJ3GEY0R00V	1/10W 0	1	
C14202	F1K1C106A062	16V 10U	1		R10107	ERJ3GEY0R00V	1/10W 0	1	
C14203	F1H1C104A071	16V 0.1U	1		R10109	ERJ3GEY0R00V	1/10W 0	1	
C14204	F1H1C104A071	16V 0.1U	1		R11301	ERX2SZJR12E	2W 0.12	1	
C14205	ECJ1VC1H181J	50V 180P	1		R11302	ERJ3GEYJ103V	1/10W 10K	1	
C14207	ECJ1VB1H103K	50V 0.01U	1		R11303	ERDS2TJ471T	1/4W 470	1	
C14208	F2A1C8210008	16V 820U	1		R11304	ERJ3RBD153V	1/16W 15K	1	
C14301	F1K1C106A062	16V 10U	1		R11305	ERJ3RBD102V	1/16W 1K	1	
C14302	F1H1C104A071	16V 0.1U	1		R11306	ERJ6GEYJ100V	1/8W 10	1	
C14303	F1H1C104A071	16V 0.1U	1		R11307	ERJ6GEYJ100V	1/8W 10	1	
C14304	ECJ1VB1H153K	50V 0.015U	1		R11308	ERJ3GEYJ152V	1/10W 1.5K	1	
C14305	F1H1C104A071	16V 0.1U	1		R11309	ERJ3RBD272V	1/16W 2.7K	1	
C14306	F1H1C104A071	16V 0.1U	1		R11310	ERJ3RBD562V	1/16W 5.6K	1	
C14307	F1H1C104A071	16V 0.1U	1		R12201	ERJ3GEYJ102V	1/10W 1K	1	
C14308	F2A1C8210008	16V 820U	1		R12202	ERJ3GEYJ222V	1/10W 2.2K	1	
C14311	ECJ1VC1H120J	50V 12P	1		R12203	ERJ3GEYJ102V	1/10W 1K	1	
C14312	F2A1C3300040	16V 33P	1		R12204	ERJ3GEYJ222V	1/10W 2.2K	1	
C14313	F1K1C106A062	16V 10U	1		R12206	ERJ3RBD331V	1/16W 330	1	
					R12208	ERJ3RBD183V	1/16W 18K	1	
D10101	MA2J1110GL	DIODE	1		R12209	ERJ3RBD472V	1/16W 4.7K	1	
D10102	MA2J1110GL	DIODE	1		R13101	ERJ3GEYJ223V	1/10W 22K	1	
D11101	B0EBKR000032	DIODE	1		R13102	ERJ3GEYJ223V	1/10W 22K	1	
D11301	MAZ73000BC	DIODE	1		R14201	ERJ3GEYJ103V	1/10W 10K	1	
D11302	MAZ8180GML	DIODE	1		R14202	ERJ3GEYJ513V	1/10W 51K	1	
D11303	MA2J1110GL	DIODE	1		R14203	D1BDR033A101	1/3W 33	1	
D11304	B0HAGM000006	DIODE	1		R14204	ERJ3RBD132V	1/16W 1.3K	1	
D11305	MAZ8120GML	DIODE	1		R14205	ERJ3RBD153V	1/16W 15K	1	
D13201	B0JBSG000053	DIODE	1		R14206	ERJ3RBD512V	1/16W 5.1K	1	
D14201	B0JCND000021	DIODE	1		R14207	ERJ3GEY0R00V	1/10W 0	1	
D14202	B0JCND000021	DIODE	1		R14301	ERJ3GEYJ272V	1/10W 2.7K	1	
D14301	B0JCND000021	DIODE	1		R14302	ERJ3GEYJ333V	1/10W 33K	1	
D14302	B0JCND000021	DIODE	1		R14303	ERJ3RBD823V	1/16W 82K	1	
					R14304	ERJ3RBD273V	1/16W 27K	1	
△ F11101	K5D312BK0010	FUSE	1		R14305	ERJ3RED474V	1/10W 470K	1	
					R14306	D1BFR0270001	1/2W 0.027	1	
IC11301	C0DACZH00035	IC	1		R14307	ERJ3RBD273V	1/16W 27K	1	
IC12202	C0DBZMCO0006	IC	1		R14308	ERJ3RED474V	1/10W 470K	1	
					R14309	ERJ3RBD562V	1/16W 5.6K	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R14310	ERJ3RED224V	1/10W 220K	1		S7702	EVQ11G05R	SWITCH,EJECT	1	
R14311	ERJ3RBD273V	1/16W 27K	1						
R14312	ERJ3RBD562V	1/16W 5.6K	1						
					##	VEP002A1A	FRONT(R)P.C.B.	1	(RTL)
⚠ T11301	G4DYA0000172	TRANSFORMER	1		D7201	B3AEA0000082	DIODE	1	
⚠ VA11101	ERZVA5V471	VARISTOR	1		P7201	K1KA06B00150	CONNECTOR(6P)	1	
W200	ERJ3GEY0R00V	1/10W 0	1		QR7201	UNR521MJ0L	TRANSISTOR	1	
ZA11101	EYF52BCY	FUSE HOLDER	1						
ZA11102	EYF52BCY	FUSE HOLDER	1		R7201	ERJ3GEYJ392V	1/10W 3.9K	1	
ZA11301	VSC5603-A	HEAT SINK	1		R7202	ERJ3GEYJ222V	1/10W 2.2K	1	
ZA11302	XYN3+J8FJ	SCREW	1		R7203	ERJ3GEYJ392V	1/10W 3.9K	1	
ZA11303	RSC0888	EARTH PLATE	1		R7204	ERJ3GEYJ222V	1/10W 2.2K	1	
ZA13201	VSC5604-A	HEAT SINK	1		R7205	ERJ6GEYJ221V	1/8W 220	1	
ZA13202	XYN3+J8FJ	SCREW	1						
ZA15301	K9ZZ00001279	EARTH PLATE	1		S7201	EVQ11G05R	SWITCH,OPEN/CLOSE	1	
ZA15302	K9ZZ00001279	EARTH PLATE	1		S7202	EVQ11G05R	SWITCH,PAUSE	1	
ZA15303	K9ZZ00001279	EARTH PLATE	1		S7203	EVQ11G05R	SWITCH,STOP	1	
					S7204	EVQ11G05R	SWITCH,PLAY	1	
##	VEP01A24A	POWER SUB P.C.B.	1	(RTL)	W7250	ERJ3GEY0R00V	1/10W 0	1	
					W7251	ERJ3GEY0R00V	1/10W 0	1	
C7901	F2A1H100B040	50V 10U	1		ZB7202	RMN0848	HOLDER	1	
C7902	F2A1V470A831	35V 47U	1						
C7903	F2A1H100B040	50V 10U	1		##	VEP002A2A	SD/USB P.C.B.	1	(RTL)
C7904	F2A1C221B111	16V 220U	1						
C7906	ECJ1VB1H392K	50V 3900P	1		C51901	ECJ0EB1C103K	16V 0.01U	1	
C7907	F2A1C221B111	16V 220U	1		C51902	F1J0J106A020	6.3V 10U	1	
					C51903	F1J0J106A020	6.3V 10U	1	
D7901	MAZ4180NHF	DIODE	1		C51904	F1J0J106A020	6.3V 10U	1	
D7902	B0AADM000003	DIODE	1						
D7903	B0AADM000003	DIODE	1		FL51901	J0MAB0000146	FILTER	1	
D7904	MAZ4220NMF	DIODE	1						
D7905	B0JAMD000026	DIODE	1		LB51901	J0JHC0000032	COIL	1	
D7906	MA2C165001VT	DIODE	1						
D7907	B0BA03600021	DIODE	1		P51901	K1KB18AA0073	FILTER	1	
⚠ IP7901	K5H501200005	IC PROTECTOR	1		P51902	K1FB104E0018	CONNECTOR(4P)	1	
L7901	G0C390JA0021	COIL 39UH	1		P51903	K1NA09E00099	SD CARD CONNECTOR	1	
P7901	K1KY23AA0606	CONNECTOR(23P)	1		R51901	ERJ2GE0R00X	1/16W 0	1	
P7903	K1KA12AA0194	CONNECTOR(12P)	1		R51902	ERJ2GE0R00X	1/16W 0	1	
					R51903	ERJ2GEJ820X	1/16W 82	1	
Q7902	B1BACG000058	TRANSISTOR	1		R51904	ERJ2GEJ820X	1/16W 82	1	
Q7903	2SB0710A0L	TRANSISTOR	1		R51905	ERJ2GEJ820X	1/16W 82	1	
					R51906	ERJ2GEJ820X	1/16W 82	1	
QR7902	UNR5211J0L	TRANSISTOR	1		R51907	ERJ2GEJ101X	1/16W 100	1	
					R51908	ERJ2GEJ820X	1/16W 82	1	
R7902	ERJ3RBD271V	1/16W 270	1		R51909	ERJ2GEJ101X	1/16W 100	1	
R7903	ERJ3GEYJ473V	1/10W 47K	1		R51910	ERJ2GEJ101X	1/16W 100	1	
R7905	ERJ3GEYJ473V	1/10W 47K	1		R51911	ERJ2GEJ2R2X	1/16W 2.2	1	
R7906	ERDS2TJ470T	1/4W 47	1		R51912	ERJ2GEJ2R2X	1/16W 2.2	1	
R7909	ERJ3GEYJ472V	1/10W 4.7K	1		R51913	ERJ2GEJ2R2X	1/16W 2.2	1	
R7910	ERJ3GEYJ562V	1/10W 5.6K	1		R51914	ERJ2GEJ2R2X	1/16W 2.2	1	
R7911	ERJ3GEYJ472V	1/10W 4.7K	1		R51915	ERJ2GEJ2R2X	1/16W 2.2	1	
R7912	ERJ3GEYJ332V	1/10W 3.3K	1						
					T51901	J0MAB0000200	TRANSFORMER	1	
T7901	G4D1A0000129	TRANSFORMER	1						
W7950	ERJ3GEY0R00V	1/10W 0	1		##		CASING/ACCESSORY/PACKING		
##	VEP002A0A	FRONT(L)P.C.B.	1	(RTL)	1	VEP002A2A	SD/USB P.C.B.	1	(RTL)
C7701	F1H1A105A028	10V 1U	1		2	VEP01A22A	POWER P.C.B.	1	(RTL)
IR7701	B3RAB0000061	REMOTE SENSOR	1		3	VEP01A24A	POWER SUB P.C.B.	1	(RTL)
PP7701	K1KA06B00150	CONNECTOR(6P)	1		4	VEP06G45A	MAIN P.C.B.	1	(RTL)
					6	L6FALCCH0003	FAN MOTOR	1	
R7701	ERJ3GEYJ330V	1/10W 33	1		⚠ 7	RGR0381D-A2	REAR PANEL	1	P
R7702	ERJ3GEYJ222V	1/10W 2.2K	1		⚠ 7	RGR0381D-B2	REAR PANEL	1	PC
					8	RMA2190-1	BD ANGLE	1	
S7701	EVQ11G05R	SWITCH,POWER	1		9	RMA2191	POWER PCB ANGLE	1	
					10	RMA2192	SD/USB PCB ANGLE	1	
					11	RMA2193	SIDE ANGLE	1	
					12	RMC0708-1	EARTH SPRING	1	
					13	RMC0708-1	EARTH SPRING	1	

DMP-BD70VP-K

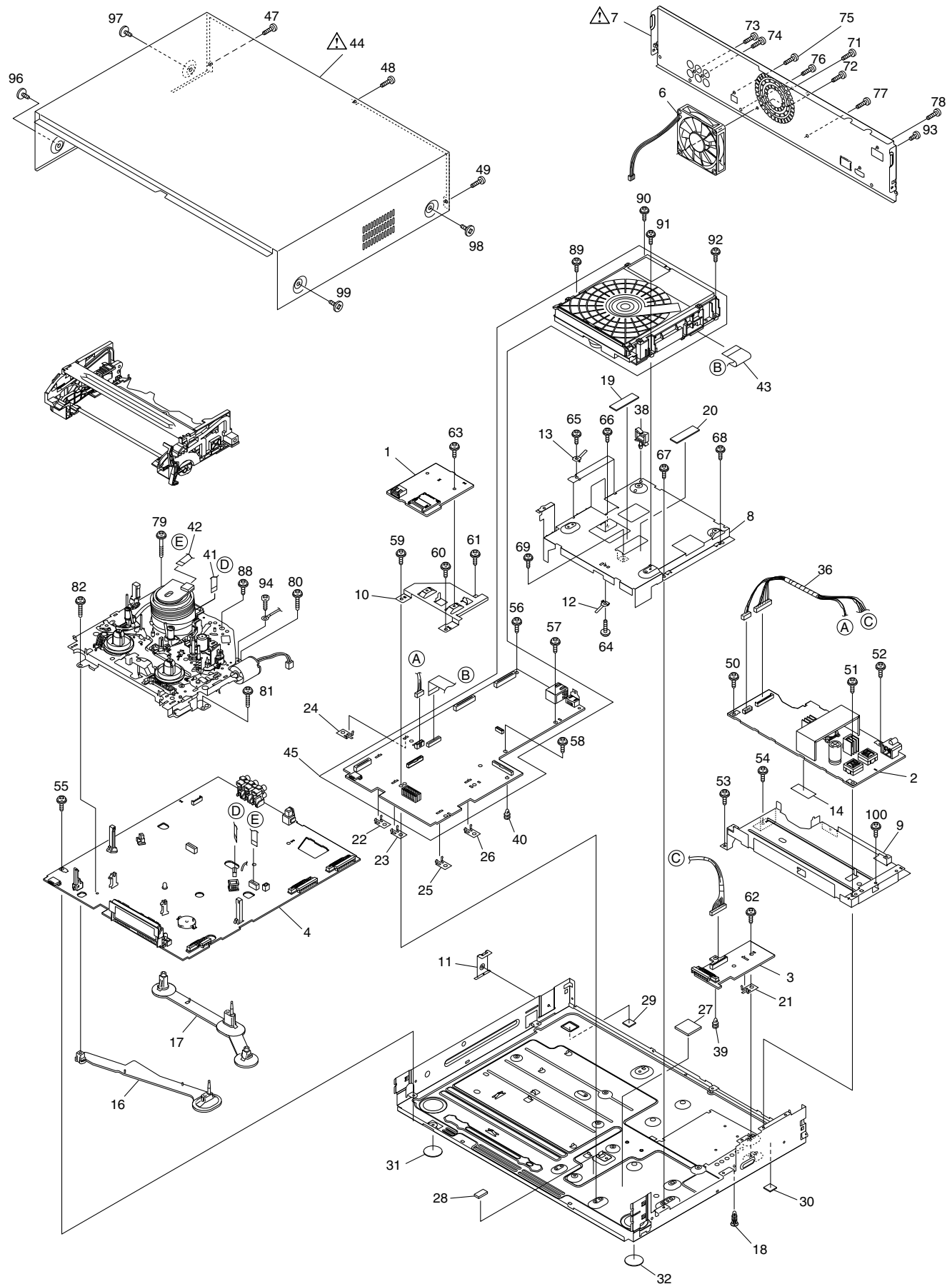
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks	Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
14	RMG0740-K1	HDD SHEET	1						
16	RMX0354	MECHA SPACER(F)	1		##	M2			
17	RMX0355	MECHA SPACER(R)	1						
18	RMX0438	PCB SUPPORT	1		15	RMQ1566	WASHER(C)	1	
19	RMX0447	EMC SPACER	1		33	RYP1488-K	FRONT PANEL ASS'Y1	1	
20	RMX0447	EMC SPACER	1		33-1	RGC0037-W	SD PANEL LIGHT	1	
21	RMZ1021	PCB SPACER	1		33-2	RGL0704-Q	SD REFLECTION PIECE	1	
22	RMZ1021	PCB SPACER	1		33-4	RGU2509C-K	OPEN/CLOSE BUTTON	1	
23	RMZ1021	PCB SPACER	1		33-5	RGU2511B-K	OPERATION BUTTON	1	
24	RMZ1021	PCB SPACER	1		33-7	RKF0791A-K	BLINDER PANEL	1	
25	RMZ1021	PCB SPACER	1		33-8	RMB0870	TRAY DOOR SPRING	1	
26	RMZ1021	PCB SPACER	1		33-9	RYF0863-K	TRAY DOOR ASS'Y	1	
27	RSC0883	INSULATION SHEET	1		33-10	RYF0864-K	DOOR ASS'Y	1	
28	RSC0884	INSULATION SHEET	1		33-10-1	RMG0735-KJ	CUSHION	1	
29	RKA0189-K	FOOT RUBBER	1		33-10-2	RMG0735-KJ	CUSHION	1	
30	RKA0189-K	FOOT RUBBER	1		33-11	VMB2521-J	BLINDER SPRING	1	
31	RKA0196-K	FOOT	1		34	VEP002A0A	FRONT(L)P.C.B.	1	(RTL)
32	RKA0196-K	FOOT	1		35	VEP002A1A	FRONT(R)P.C.B.	1	(RTL)
36	VEK0N74-1	WIRE WITH CONNECTOR	1		37	VJF0036	NYLON RIVET	1	
38	VJF0169	CLAMPER	1		83	RHD26045-J	SCREW	1	
39	VMX1336	MINI CARD SPACER	1		84	RHD26045-J	SCREW	1	
40	VMX1336	MINI CARD SPACER	1		85	RHD26045-J	SCREW	1	
41	VWJ2003	FFC	1		86	RHD26045-J	SCREW	1	
42	VWJ2004	FFC	1		87	RHD26045-J	SCREW	1	
43	VWJ2091	FFC(18P)	1		95	RHD30111-31	SCREW	1	
44	RKM0565A-K1	TOP CASE	1						
45	RFKNBD70VP	BDP/DIGITAL P.C.B. MODULE	1	P	##	M3			
45	RFKNBD70VPC	BDP/DIGITAL P.C.B. MODULE	1	PC					
47	RHD30119-L	SCREW	1		201	VEG1697KIT	RDD CYLINDER ASS'Y	1	
48	RHD30119-L	SCREW	1		201-1	VMD5464	FPC HOLDER	1	
49	RHD30119-L	SCREW	1		202	VEM0800T	CAPSTAN MOTOR	1	
50	RHD30111-31	SCREW	1		203	L1AG00000011	FE HEAD ASS'Y	1	
51	RHD30111-31	SCREW	1		204	VDB1431	TENSION ARM BOSH	1	
52	RHD30111-31	SCREW	1		205	VDG1686	INTERMEDIATE GEAR	1	
53	RHD30111-31	SCREW	1		206	VDG1685	MAIN CAM GEAR	1	
54	RHD30111-31	SCREW	1		207	VDG1512	IDLER GEAR	1	
55	RHD30111-31	SCREW	1		208	VDG1512	IDLER GEAR	1	
56	RHD30111-31	SCREW	1		209	VDR0372A	REEL TABLE	1	
57	RHD30111-31	SCREW	1		210	VDR0372A	REEL TABLE	1	
58	RHD30111-31	SCREW	1		211	VDV0391	CAPSTAN BELT	1	
59	RHD30111-31	SCREW	1		212	VEM0797	LOADING MOTOR	1	
60	RHD30111-31	SCREW	1		213	VMD4987	WORM SHAFT HOLDER	1	
61	RHD30111-31	SCREW	1		214	VHD1044-1	SCREW	1	
62	RHD30111-31	SCREW	1		215	VMB3550A	CHANGING GEAR SPRING	1	
63	RHD30111-31	SCREW	1		216	VMD4253	LED PRISM	1	
64	RHD30111-31	SCREW	1		217	VMD5466	OPENER PIECE	1	
65	RHD30111-31	SCREW	1		218	VML3632	IDLER ARM	1	
66	RHD30111-31	SCREW	1		219	VML3933	PINCH CHARGE ARM	1	
67	RHD30111-31	SCREW	1		220	VML3934	MAIN LEVER	1	
68	RHD30111-31	SCREW	1		221	VMX2208	WASHER	1	
69	RHD30111-31	SCREW	1		222	VMX2699	WASHER	1	
71	RHD30119-L	SCREW	1		223	VMX3092	P4 CAP	1	
72	RHD30119-L	SCREW	1		224	VMX3196	WASHER	1	
73	RHD30119-L	SCREW	1		225	VMX3196	WASHER	1	
74	RHD30119-L	SCREW	1		226	VDG1684	SECTOR GEAR	1	
75	RHD30119-L	SCREW	1		228	VXA7105	S SHAFT HOLDER	1	
76	RHD30119-L	SCREW	1		229	VDG1514	CHANGE GEAR	1	
77	RHD30119-L	SCREW	1		230	VXA7106	T SHAFT HOLDER	1	
78	RHD30119-L	SCREW	1		231	L1AE00000044	AC HEAD ASS'Y	1	
79	RHD30148	SCREW	1		231-1	VHD1066-2	SCREW	1	
80	RHDC0023	SCREW	1		231-2	VHD1066-2	SCREW	1	
81	RHDC0023	SCREW	1		231-3	VHD1185	SCREW	1	
82	RHDC0023	SCREW	1		232	VXL3107	S LOADING ARM	1	
88	VHD1092-1	SCREW	1		233	VXL3108	T LOADING ARM	1	
89	VHD1092-1	SCREW	1		234	VXL3109-7	PINCH ARM	1	
90	VHD1092-1	SCREW	1		235	VXL3343	T BRAKE ARM	1	
91	VHD1092-1	SCREW	1		235-1	VMB3548	T BRAKE SPRING	1	
92	VHD1092-1	SCREW	1		237	VXL3110	P5 ARM	1	
93	XSN3-4FJ	SCREW	1		238	VXL3111-1	TENSION ARM	1	
94	XTV26-6FFJ	SCREW	1		239	VXL3124	CHANGING LEVER	1	
96	RHD30113-1K	SCREW	1		240	VXL3252	S BRAKE ARM	1	
97	RHD30113-1K	SCREW	1		241	VXP2133	CENTER CLUTH	1	
98	RHD30113-1K	SCREW	1		242	VXP2168	TORQUE CLUTCH	1	
99	RHD30113-1K	SCREW	1		243	VMA0L25	TOP PLATE	1	
100	RHD30111-31	SCREW	1		244	VMD5468	SIDE PLATE(L)	1	
					245	VMD5469	SIDE PLATE(R)	1	

DMP-BD70VP-K

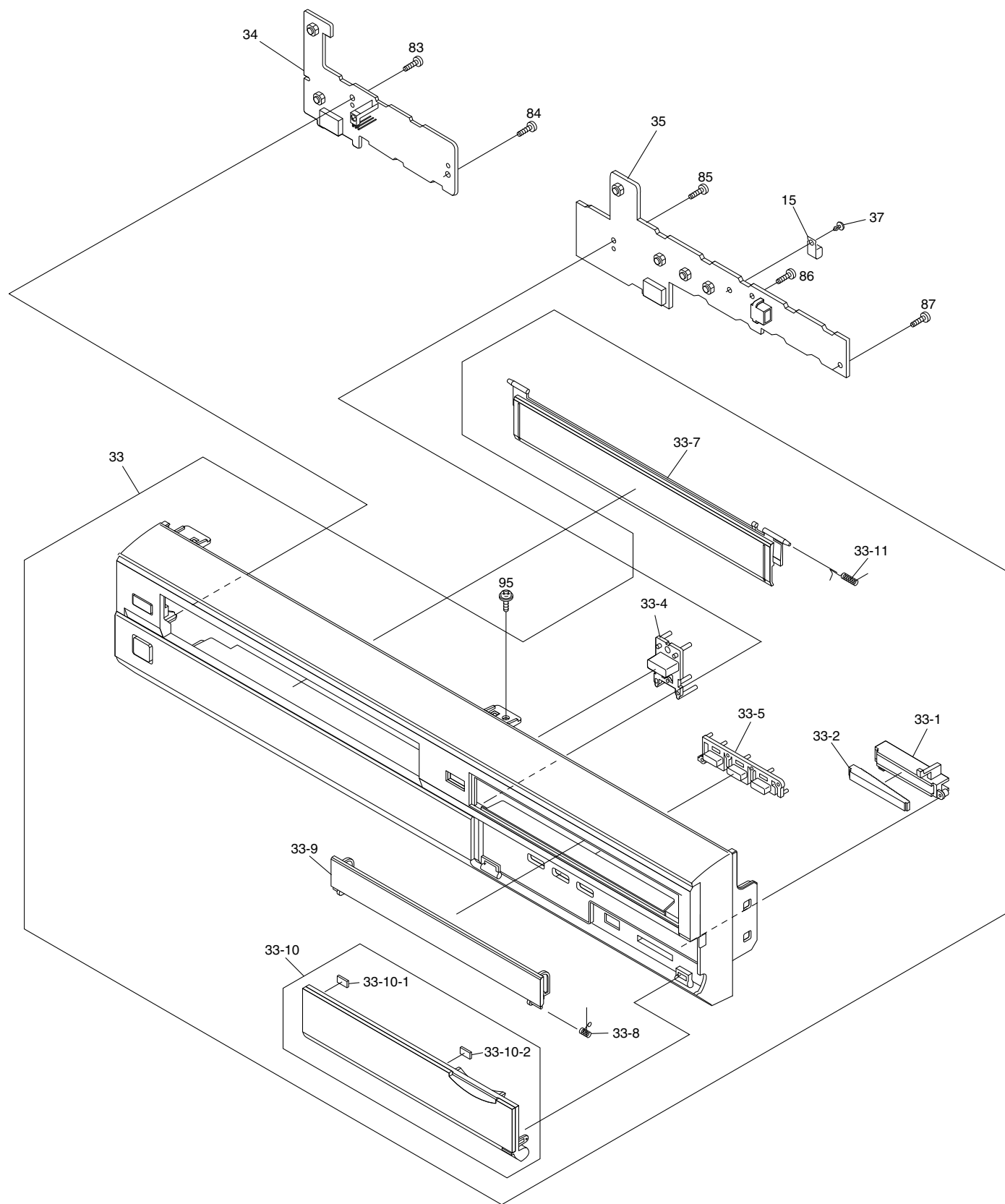
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S8. Exploded View

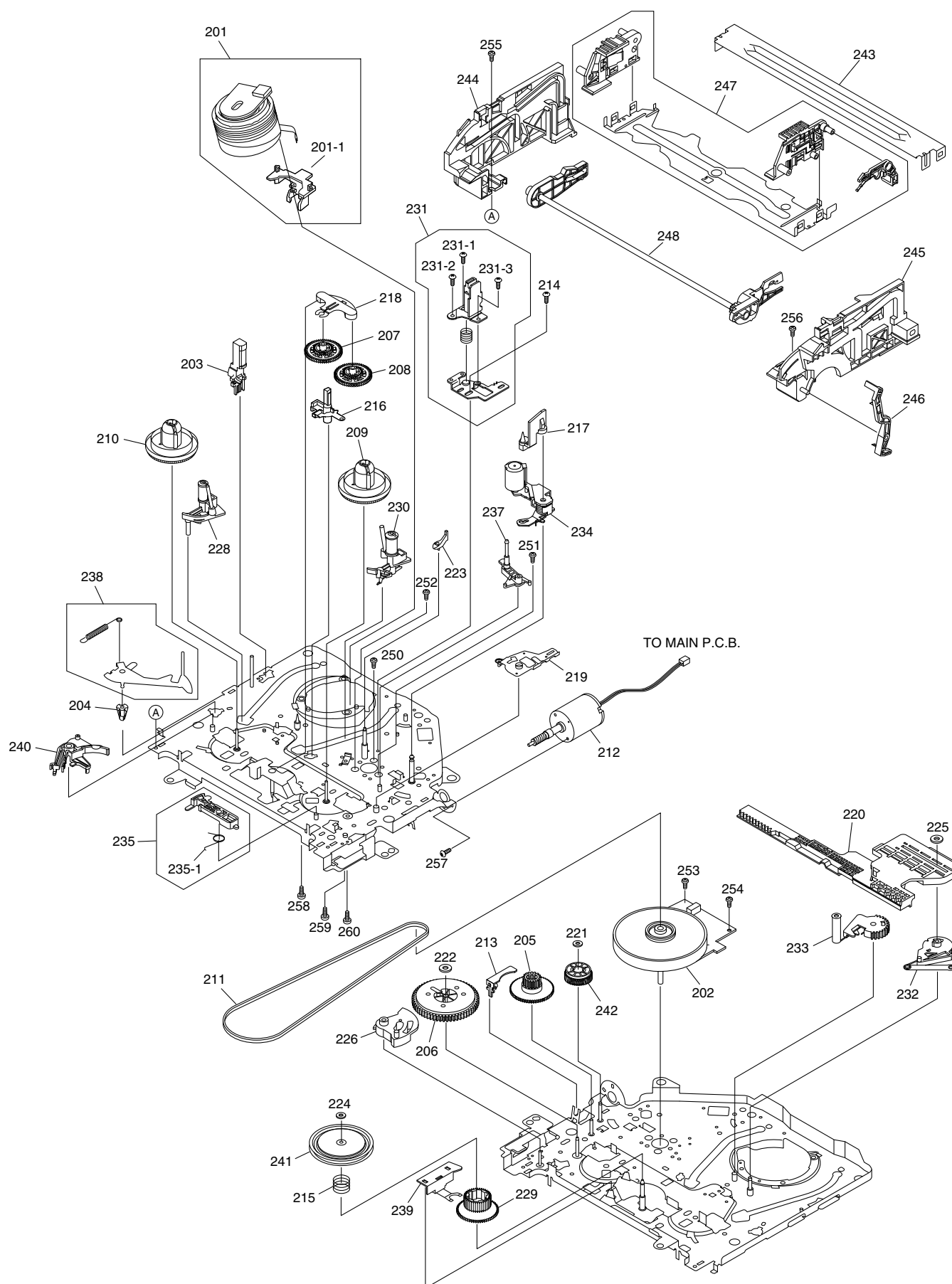
S8.1. Frame and Casing Section (1)



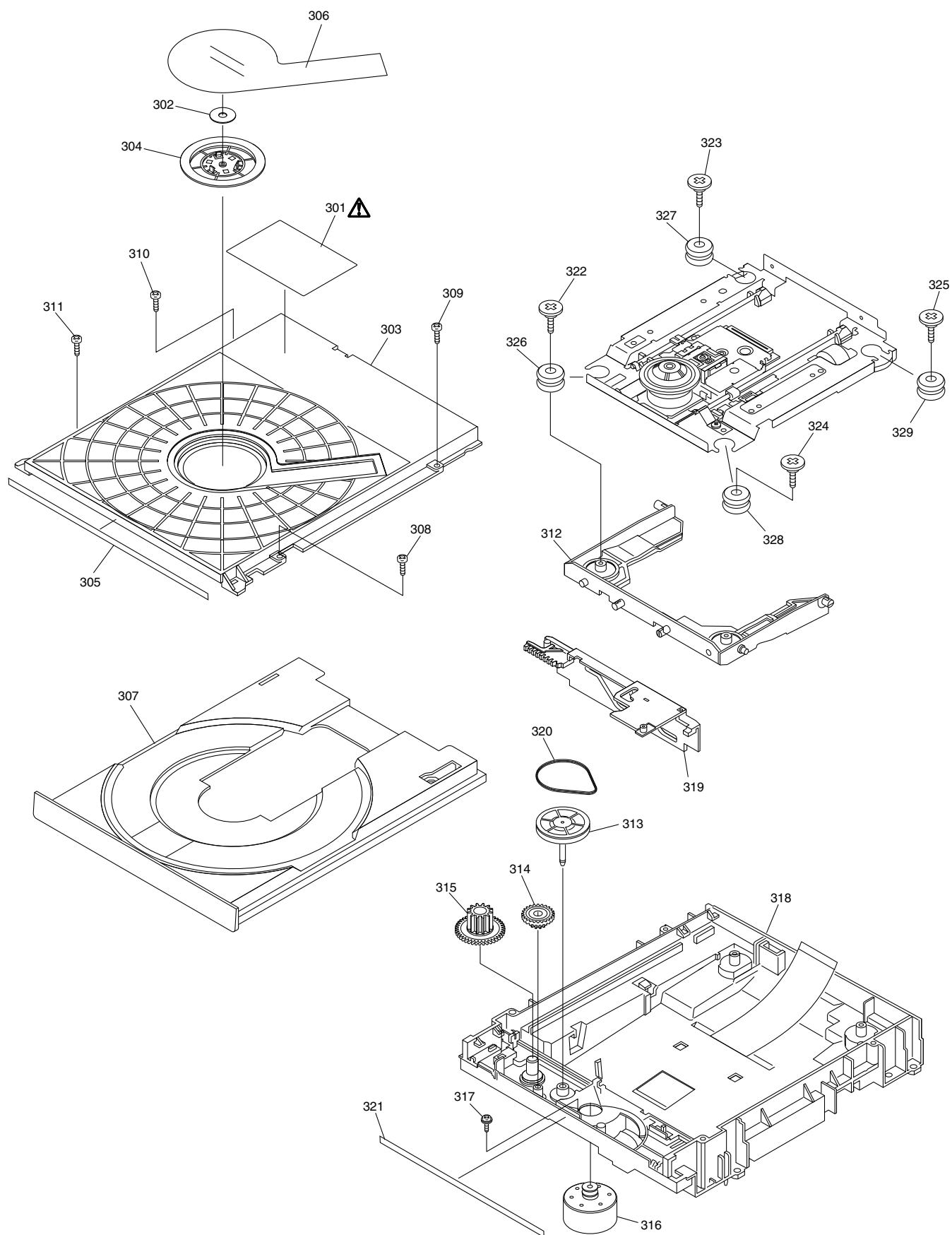
S8.2. Frame and Casing Section (2)



S8.3. Mechanism Section (1)



S8.4. Mechanism Section (2)



S8.5. Packing Parts and Accessories Section

